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ABSTRACT

In an effort to develop curricula to meet the occupational training needs identified in a 1978 survey of area business leaders, Broward Community College (BCC) undertook a research project designed to: (1) determine the occupational areas that were in greatest need of vocational training programs; (2) identify the job-level competencies for the areas with highest priority; and (3) make recommendations for the implementation of new occupational programs and/or courses. The project report first details the process by which the project staff, in coordination with the Broward County Personnel Association, identified the six occupational areas in most need of community college curricula to support them: business data processing programmer; construction secretary; engineering drafting; electronic technician; head nurse management; and insurance secretary. The survey and interview techniques that were used to identify job requirements and competencies are then detailed, from both the perspective of the supervisors and the employees. The report then discusses the findings for each occupational area, including minimum education required, criteria for promotion, descriptions of job tasks in order of their importance, and recommendations for changes in BCC's curricula. The report includes a review of the literature dealing with occupational curricula at community colleges. (JP)

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OCCUPATIONAL ANALYSIS:

A BASIS FOR CURRICULUM DEVELOPMENT AND EVALUATION

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Broward Employment and Training Administration

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FOREWORD

The Department of Labor through the Broward Employment and Training Administration made the Curriculum Development for New Occupational Training possible by funding the CETA Title VI Project, Title, submitted by Broward Community College's Office of Institutional Research and Systems Planning, for 1978-79. The assistance of the Broward Industrial Board, Fort Lauderdale Area Chamber of Commerce, Broward County Urban League, and Broward County Public Schools contributed to community acceptance and field validation of the project. Kathleen Koontz and Diane Schiffman of Broward Community College's BETA staff assisted Mantha Mehallis in the request for funding.

Further support was present from Broward Community College's Board of Trustees, President A. Hugh Adams, and Executive Vice President, Clinton D. Hamilton. They endorsed the project which enabled the Project Director, Mantha Vlahos Mehallis, to employ Kerry Lyn Fair as Project Coordinator. Ms. Fair organized the interviewing staff into a cohesive research team. She did an excellent job in supervising and participating in the entire data collection process. Special thanks are extended to Ted Wright for computer programming the analyses; and to Antoinette Montwell and Mildred Carn for secretarial assistance. All contributed to the success of the project, which is described in detail herein.

TABLE OF CONTENTS

Foreword	
I. THE PROBLEM AND REVIEW OF THE LITERATURE	1
Introduction	1
The Problem	1
The Purpose	1
Review of Literature	2
Background	8
Limitations	10
Assumptions	12
Definition of Terms	13
Research Questions	15
II. METHODOLOGY	16
Population and Sample Selection	16
Determination of the Occupational Priority Areas	19
Project Preparation Procedures	23
Interviewing - Procedures for Data Collection	24
Establishment of Advisory Board	25
Instrumentation	26
Data Analysis	27
III. RESULTS, CONCLUSIONS, AND RECOMMENDATIONS FOR CURRICULA	29
General Results	29
Business Data Processing - Computer Programmer	43
Construction Secretary	67
Insurance Secretary	88
Drafting	109
Electronic Technician	126
Head Nurse	148
Correlations Between Supervisor and Employee Responses	179
IV. PROJECT CONCLUSIONS, RECOMMENDATIONS, AND IMPACT	180

V.	REFERENCES	183
	APPENDICES	189
A.	Occupational Priority Areas Questionnaire	190
B.	Letters of Request	193
C.	Employer's Questionnaire Part A (Supervisor)	201
D.	Tasks Analysis Questionnaire Part B (Supervisor)	206
E.	Employee Validation Questionnaire Part C (employee)	210
F.	Drafting Skill Checklist	216
G.	Advisory Board Members and Up-date Letter	218
H.	Letter of Appreciation	223
I.	Correlations between Supervisors and Employees	225

THE PROBLEM AND REVIEW OF THE LITERATURE

INTRODUCTION

Broward Community College's Office of Institutional Research and Systems Planning conducted a needs assessment among all major employers in Broward County in 1978. Results of the study identified existing training needs among the employers (business, industry, and government), the extent to which the educational agencies were meeting the needs, and established communication between the college and the private sector by means of direct feedback. Conclusions indicated that employers were becoming disenchanted with surveys and no follow-up on implementation.

Therefore, the Director of Institutional Research and Systems Planning was concerned that the results of the assessment be utilized to begin addressing needs. Consultation with the College Staff, Broward Industrial Board (BIB), Ft. Lauderdale Area Chamber of Commerce, and the Urban League indicated their concurrence. As a result, a project proposal was developed to study "Curriculum Development for New Occupational Training." The proposal was submitted to the Broward Employment and Training Administration (BETA) and received CETA funding for 1978-79. The design and execution of the study is documented in the ensuing pages.

THE PROBLEM

The problem was that although the employers in Broward County had expressed their perceived occupational education needs, the needs had not been articulated into necessary action for new

curriculum development and/or evaluation and revision of existing programs.

THE PURPOSE

The purpose of the study included the following objectives:

1. To form an advisory board among business, industry and local units of government and educational institutions in order to establish a system for identification and prioritization of Broward County employer training needs and the systematic updating of these needs;
2. To select the highest need priorities for each area (discipline and sector) and initiate course/program development
 - a. Conduct task analyses for all job titles as necessary
 - b. Determine job-entry level competencies
 - c. Translate competencies into curricula;
3. To conduct all necessary research for documentation of resources available for the delivery of new courses/programs; and
4. To implement the new training programs.

Evaluation of project goals and objectives would be conducted as follows:

1. Formative evaluation of course or program content;
2. Summative evaluation in the form of a questionnaire to advisory board members regarding the adequacy of programs developed.

REVIEW OF THE LITERATURE

The community college, by definition, both serves and is governed by it's local community. The term "community college," was first used by the 1947 President's Commission on Higher Education in reference to public junior colleges which were both "community centered" and "community serving." Community colleges spread throughout the country in the 1960's to become both the catalysts and the products of community consciousness. (Gleazer, 1968).

Myran (1978, p.2) proposed that the community college has "the responsibility to maximize the congruence between its services and programs and the educational needs and aspirations of all population groups in its service areas." No matter if a student majors in liberal arts or technical programs, the ultimate purpose of achieving a degree in modern American society is to obtain employment. Hirst (1977) referred to this characteristic as the need for establishing "a positive link between what is taught and what is required on the job." In order to know what to teach, one must research the job requirements. Curriculum content should be focused on the necessary program outcomes so that graduates can obtain gainful employment.

The military services pioneered the use of data-based means to determine curriculum content for training programs (DAF, 1970; DAF, 1973, DA, 1972). Curriculum is defined here as "intended learning outcomes" to be viewed as the "product" (i.e., "what is to be learned") as distinguished from instruction, or the "process" (how such learning is to be attained). What curriculum is to be learned is dependent upon policy setting (Johnson, 1967, p. 135). The intent of the present study is to focus on curriculum rather than instruction in order to determine the "intended learning outcomes."

DeCaro (1979, p.1.) supported the purpose of this study when he said that, "The initial step in establishing any course of study in a technical career (associate degree level) is determining the skills that a graduate must possess for successful employment. There is general agreement that these skills should reflect the needs of the profession in which the graduate is to be employed. At best, needs of a

profession are derived from the advice of a panel of experts in the field. At worst, they are based upon the experience of a single consultant or faculty member. Although needs so derived may reflect the skills required by a profession, they have a fairly high probability of being deficient."

Fowler and Seymour (1974, p.46) further supported this approach when they stated that, "Development of any program should consist of a systematic approach to curriculum development based on an occupational analysis of the specific speciality." Similarly, Flanagan (1973, p.551) after studying student populations and educational programs, concluded that, "Recent experience indicates that the quality of the present educational programs can be improved more by systematic selection of what is to be taught than by improving how it is taught."

How are curricula developed? Drathwohl (1965, p. 83092) says that, "Curricula gain adoption by consensus that what is taught is of value". Kapfer (1971, p.137) says a rational approach to curriculum development utilizes well-defined objectives. Identification of performance discrepancies results in the identification of training needs and objectives (Mager and Pipe, 1970) and subsequently program objectives (Mager, 1962, Kemp, 1971).

A well-defined training objective must contain the following information: (1) A statement that explicitly describes that overt behavior by which the learned capability can be observed and measured; (2) A statement of the conditions and limitations imposed on the performance; and (3) A statement of the standards of performance expected of the students (Bulter, 1972, p.90). Training objectives must be measurable and described in performance terms. The curriculum designer

can utilize them to establish program outcomes so that curricula objectives can be developed and validated.

Minimum level behavioral objectives state the basic goal in terms of the performance, activity, instrumentation, or behavior that will be required of the learner. They are sometimes referred to as "program objectives," because they do not include all the specifics of performance objectives and are often used to develop overall programs (McAshan, 1970,p18).

Many applications have been made in public and private agencies for job description purposes and for developing training curricula. The following two factors are common throughout:

- 1) "Comprehensive listing of tasks that comprise the specific job activities, serving as the basic unit of an occupation for analysis purposes; and
- 2) Heavy reliance upon job incumbents (or others very close to the actual work situation) as the primary sources of information", (Ammerman, et.al., 1977, p. 14).

The task inventory, or description, and occupation survey processes are essentially job description techniques. A job/task description can be described as a summary of the behavioral content of a job. For the purpose of this study, "task inventory," "Task analysis," and "task survey" are synonymous and are used interchangeably.

"The validity of course design decisions is directly related to the care and accuracy with which the task analysis is done. Training programs must be responsive to the real needs of the job. A thorough going task analysis is the very first step in that direction." (Ammerman, et.al., 1977 p. 84).

Task analysis is a systematic process of: 1) defining these desired outcomes; 2) identifying variables which affect the outcomes; and

3) developing a plan whereby these variables may be managed to produce the desired outcomes" (Boston, 1972, p.7).

The primary purpose of task analysis is to define the desired outcomes and to plan a course of action which will produce the desired outcomes as defined. The plan developed as a result of the task analysis is labeled "the course of action" and sequences activities planned in order to achieve the outcome objective. Task analysis allows the curriculum designer to focus on necessities while eliminating unproductive allocation of resources.

Ammerman, et.al., (1977) compiled four volumes concerning Performance Content for Job Training for Ohio State University. The volumes contain the following information:

- a) Survey feasibility
- b) Form of task statements
- c) Types of data:
 - 1. Extent of task occurrence
 - 2. Level of task significance to the job, and
 - 3. Degree to which formal school training is recommended for primary task learning to occur.
- d) Procedural roles
- e) Cost effectiveness.

Questionnaires were administered to both workers and supervisors and results compared. Ohio State University has prepared computer packages to process the occupational task analysis survey data obtained along with Ammerman's procedures which are based on factor analysis and regression analysis. The sequence of components established for the Task Survey process are the following:

- 1. Determining the occupational scope of interest.
- 2. Constructing comprehensive lists of job tasks.
- 3. Obtaining task data and ratings from workers and supervisors.

4. Determining the job relevance of tasks, and reporting the descriptive results.
5. Selecting tasks for instructional consideration.
6. Determining the performance level to which each task should be developed.
7. Formulating statements of terminal performance objectives for the purpose of communicating the intent of the learning program. (Ammerman, et.al., 1977, p.8)

The implementation of a task analysis enables more accurate and detailed information to be collected. King and Brooks (1976) defined the task analysis as "the process of reviewing the actual job content, including task lists, procedures for performing tasks, information related to tasks, quality control standards and equipment; tools and supplies. In providing "an opportunity for trainees to meet performance standards acceptable to employers," Harrison (1974) realized the need to implement a task analysis. Job data were collected "relative to existing job opportunities, job descriptions, methods of job entry, aptitude and personal traits, job tasks performed and the proficiency required to perform each task." Similarly, Bernard (1975) discussed some of these components in the importance of the task analysis instrument.

Florida has a competency-based vocational education system. The system implies that course performance objectives must be the skills graduates would need to get and maintain a job. Most of the substantive curricula changes have been based on V-TECS (Vocational-Technical Education Consortium of States) which is compiling a list of job skills which are being organized into catalogs of objectives on the national level. For each catalog, a state's V-TECS organization spends up to two years analyzing job skills by interviewing actual workers. The occupational survey is used to identify entry-level

tasks of the worker which are translated into performance objectives and criterion-referenced measures. Instructors can use the validated V-TECS objectives to evaluate "home-grown" course/program objectives.

Other than V-TECS, task survey procedures have not been used routinely in curriculum planning by educational agencies (State of Florida, 1976, p.37). Ammerman (1977) states some possible reason for this phenomenon:

1. Uncertainty whether large-scale surveys were feasible for non-military jobs.
2. Uncertainty about how to state tasks in a form useful for curriculum data.
3. Uncertainty concerning types of task data necessary.
4. Uncertainty concerning meaningful roles of local instructional personnel and community interest.
5. Uncertainty of cost-effectiveness of such a study.
6. Uncertainty about training at general or detailed levels.

BACKGROUND

The Employer Needs Assessment (Mehallis, 1979) conducted by Broward Community College (BCC) in 1978 was concerned with "current and future needs for training and manpower, present capabilities of educational agencies to meet the manpower needs, and recommendations for community planning to meet those needs." The approach utilized in the needs assessment centered on collecting information directly from the community. The training needs, as perceived by major Broward County employers, were determined by means of personal interviews. The stated benefits of the needs assessment included ... "the opportunity to define needs more effectively, to identify the most appropriate solutions and to promote interaction between the public and private

sector to facilitate the delivery of instruction..." (Mehallis, 1978, p.1). The "interaction" was regarded as essential to facilitate community planning to meet the determined training need.

The findings of the needs assessment were presented in three primary categories:

- a) Types of training identified by employers as most needed in Broward County
- b) Highest projected demand occupations
- c) Available educational programs for training and identification of areas with unfulfilled training needs. (Mehallis, 1978, p.79)

As an outgrowth of these findings a recommendation was made for the implementation of a follow-up project to act upon the expressed needs. The community was to be used not only to define and express needs, but to provide the information necessary to meet those needs in the form of curriculum design and/or evaluation of existing programs. As pointed out by the Department of Commerce..."advances in technology, shifts in the demand for certain products and services, the migration of industries, and the economic trends in the nation call for changes in the demand for various occupational skills" (O'Hara, 1977, p.1). Occupational needs of the community change, and as they do, the college must adjust its program content with appropriate curriculum action.

Currently proposals for new curriculum at BCC come primarily from campus personnel who have determined by various methods that a new course is needed. A proposal is submitted to the Academic Affairs Committee and must be accompanied by adequate research to provide the following information about the proposed course/program and expectations of potential graduates:

- a) A description of what graduates would be able to do
- b) Substantial evidence of agreement between the college and employers concerning what the graduates should be able to do
- c) Evidence of a substantial continuing need for graduates of the program
- d) Data regarding relevant program offerings at other post-secondary institutions in the district
- e) Assessment of economic impact of implementation
- f) Assessment of Civil Rights impact of implementation. (Broward Community College Policy Manual).

Informal interviews with faculty indicated that most new curriculum is initiated by faculty members who "felt" needs for a new program. In most cases, the faculty member develops the new curriculum on his or her own initially (sometimes with Staff and Program Development (SPD) monies for released time) and then submits it to an advisory committee for approval. In general, then, the advisory committee is asked to ratify an already established curriculum package. There usually is no attempt to conduct a formal task analysis in the occupational field to determine necessary learning outcomes first and then to translate them into curriculum objectives.

LIMITATIONS

Any limitations which became apparent during the course of the project were investigated to the extent possible. Where possible appropriate modifications were made, however, several factors could not be controlled by the research team. They were as follows:

1. Even though the methodology indicated that respondents would be personnel directors, they did not always prove to be the most appropriate person to interview.

It was determined that the immediate supervisor of the position in question was more appropriate. In large companies the department heads were the most relevant contacts; in smaller businesses, the owner often was also the person who hired personnel.

Therefore, the following types of persons were interviewed:

<u>Occupation</u>	<u>Type of Person(s) Interviewed</u>
Business Data Processing: Computer Programmer	Department Manager
Construction Secretary	Owner/Office Manager/ Personnel Director
Drafting	Head Drafter/Drafting Supervisor/Personnel Director
Electronic Technician	Personnel Director/ Department Head/Head Engineer/Senior Technician
Head Nurse	Director of Nursing Director of Personnel
Insurance Secretary	Owner/Office Manager/ Personnel Director

2. Because of the format and the time factor in completing Part B of the questionnaire, some supervisors were hesitant to provide adequately detailed information. Copies of job descriptions were offered instead. While the information was helpful, it did not conform to the questionnaire design and, therefore, made it impossible to correlate supervisors' and workers' response on Part B for some areas.
3. Several of the persons interviewed offered "extra" information. Interviewers had to make personal judgments in interpreting or summarizing information presented, resulting in additional amounts of interviewer bias.
4. The personal nature of the interview situation could have caused the supervisor to be hesitant in relaying detailed information.

5. The generic design of the task analysis could have limited the scope of information collected in specific occupations.
6. The "employee" involved in the study was nonrandomly selected by the supervisor. The selection could have influenced the information obtained.
7. Since the program areas being studied are dynamic, changes in the educational curriculum offerings may have occurred during the execution of the project.
8. It is possible that some high priority areas may have been inadvertently overlooked.
9. Numerous small businesses (especially construction) in the sample could not participate in the project, since the relevant person was rarely available for interview.
10. Interviewers could have erred in recording manual responses on Part A of the questionnaire.
11. Coding errors could have been made in preparing material for computer processing. Key punch errors should have been minimal, since all material was verified.
12. The gas shortage experienced in South Florida during spring and summer 1979 made it necessary to change the research design and validate the task analysis via mail questionnaire from employees rather than by means of personal interviews.
13. The high turnover of BETA employees caused some lack of continuity in the project and resulted in changes in the execution of the design and final report.

ASSUMPTIONS

The Project Director assumed that the defined populations included the universe of employers which actually existed in the specified occupational fields in Broward County.

Definition of Terms

B.C.C.	Broward Community College
B.E.T.A.	Broward Employment and Training Administration
B.D.P.	Business Data Processing
B.I.B.	Broward Industrial Board
Career or Job Ladder	A graphic description of the opportunities for job advancement and career development in a given field of employment.
C.E.T.A.	Comprehensive Employment and Training Act
C.B.E.	Competency Based Education
Competency	The ability (including knowledge, skills and/or attitudes) to perform a specific task or duty successfully.
Curriculum	A set of objectives, content and instrumental activities arranged in the best sequence for learning.
Duty	One of the distinct major work activities in an occupational area. A duty consists of one or more tasks
Employee	Person in occupational position or job under consideration
Entry-Level Skills	Minimum, prerequisite skills required for a person entering an occupation to obtain a job
ERIC	Educational Resources Information Center
F.S.E.S.	Florida State Employment Service
H.N.M.	Head Nurse Management
L.P.N.	Licensed Practical Nurse

O.J.T.	On-the-job training
P.C.B.	Printed Circuit Board
P.D.	Personnel Director
Performance Objective	A statement in precise, measurable terms of a particular behavior to be exhibited by the learner under specified conditions.
R.N.	Registered Nurse
S.F.M.A.	South Florida Manufacturers Association
S.P.D.	Staff and Program Development
S.P.S.S.	Statistical Package for the Social Sciences (computer software package)
Stratified Random Sampling	A sampling process that ensures in advance that a sample will contain the same proportion of members of different groups as in the larger population.
Task Analysis	A method for investigating a job by using an instrument designed to obtain information regarding job requirements and entry-level skills in selected occupational areas.

Research Questions

The following research questions were addressed by the researchers:

- 1) What were the occupational priorities of greatest need as defined by employers within each discipline which were appropriate to post-secondary level education?
- 2) What were the job-entry level competencies for each occupational area identified?
- 3) What recommendations could be made with regard to curriculum development or curriculum evaluation and the resources available for implementation of new occupational programs and/or courses?

METHODOLOGY

Population and Sample Selection

The size of each occupational sample was determined using a stratified random sampling taken from the population of 200 companies, taking into consideration geographic location. Statistics identifying the total number of relevant companies, or population, in Broward County were provided by the Florida State Employment Service (FSES). No restrictions were placed on company size, since the purpose of the project was to obtain a broad perspective. Following is a list of the occupational areas, sample size and source of company names.

<u>Occupational Area</u>	<u>Saturation Sample of Companies</u>	<u>Source of Population</u>
Head Nurse	25	All major hospitals in Broward County plus randomly selected home health agencies.
Computer Programmer: Business Data Processing	40	Membership list of the Data Processing Managers Association.*
Electronic Technician	45	Broward County 1978 Industrial Facilities Guide. **
Drafting	40	" " "
Construction Secretary	25	" " "
Insurance Secretary	25	" " "
	<u>200</u>	

- * This list was provided through the cooperation of the Data Processing Management Association (DPMA) whose chairman served on the project advisory board.
- ** This list was prepared by the Broward Industrial Board (BIB) and represents companies responding to an inquiry conducted by BIB in 1977.

Following are the statistics pertaining to the completion of Part A of the Task Analysis:

<u>Area</u>	<u>Sample Size</u>	<u># Completed</u>	<u>% Completed</u>
Head Nurse	25	18	72%
Computer Programmer	40	21	53%
Electronic Technician	45	30	67%
Drafting	40	19	48%
Construction Secretary	25	8	32%
Insurance Secretary	25	19	76%
Projected Total:	200	Completed Total: 115	Total: 57%

Following are the statistics pertaining to the return of Part B (Employee Validation) of the Task Analysis. The projected sample size was determined by the completed number of respective Part A's.

<u>Area</u>	<u>Sample Size</u>	<u># Returned</u>	<u>% Returned</u>
Head Nurse	18	11	61%
Computer Programmer	21	9	42%
Electronic Technician	30	16	53%
Drafting	19	12	63%
Construction Secretary	8	7	88%
Insurance Secretary	19	12	63%
Projected Total: 115		Completed Total: 67	Total: 58%

DETERMINATION OF THE OCCUPATIONAL PRIORITY AREAS

The Project Director and the staff met with the Broward County Personnel Association at the commencement of the project to discuss the demand areas identified as priority needs in the previous year's project. As a result, a survey (see Appendix A) was mailed to a random selection of companies within the occupation areas listed below:

Accounting	Insurance
Airport Employers	Laundry
Auto Dealership & Leasing	Manufacturing & Electronics
Commercial Banks	Newspaper
Construction	Restaurants, Hotels, & Night Clubs
Department Store Employers	Retail Grocers
Employment Employers	Shipbuilders
Health	Trucking & Moving

Employers were requested to:

- a) Rank the given titles in order of highest priority
- b) Indicate any omitted high priority jobs
- c) Indicate interest in being a member of the educational advisory panel.

The information collected from the survey was used to determine the mean rank importance of each job title in terms of perceived future needs. From this, a list of occupations for further research was determined, as indicated below:

Auto Mechanic	Licensed Practical Nurse (L.P.N.)
Auto Sales	Loan Processing Clerk
Bookkeeper	Management/Supervisor
Business Data Processing	Medical Lab Technician
Carpenter	Metal Working Machinist
Chef	Registered Nurse (R.N.)
Electrical Engineer	Retail Sales
Electro-Mechanical Assembler	Savings Counselor
Electronic Technician	Secretary-Banks, Health, Trucking
Engineering Drafting	Auto Dealers, Insurance,
Heavy Equipment Operator	Construction
Home Health Aide	Short-Order Cook
Insurance/Agent/Broker	Teller

Each area was researched to determine whether the need was further validated and whether training was appropriate at the community college level.

Following is a list of occupations, in alphabetical order, which were subsequently eliminated from the project for the stated reasons:

Automotive Mechanic -	Training available at secondary school level
Automotive Sales -	Training available at either vocational level or on-the-job (O.J.T.) training
Automotive Parts Sales -	O.J.T.
Bookkeeper -	Training offered within the accounting courses at B.C.C.
Carpenter -	Training available at secondary school vocational level
Chef -	Courses offered at B.C.C.
Electrical Engineer -	Program available at B.C.C. in Electrical Engineering Technology which can lead to a four year baccalaureate degree
Electro-Mechanical Assembler -	Generally O.J.T. vocational level
Heavy Equipment Operator -	Training available at secondary school vocational level
Home Health Aide -	Courses available at vocational schools; area not generally regarded as being applicable to community college level
Insurance Agent/Broker -	B.C.C. offers general insurance courses and a preparatory course for licensure
Licensed Practical Nurse (LPN) -	Courses available at vocational school level
Loan Processing Clerk -	Program offered at B.C.C.; O.J.T.

Management/Supervisor - (Health, Aircraft, Restaurants, Banks, Auto-Dealing, Retail Stores, Construction)
The basic principles of management apply throughout the different areas. Management courses are offered at B.C.C., and the specialized needs of these different occupations are met through O.J.T. and/or additional education at upper division universities.

Medical Laboratory Technician - Program available at B.C.C. and vocational school level

Metal Working Machinist - Training available at secondary school vocational level

Registered Nurse (R.N.) - Courses available at B.C.C. and some local private colleges

Retail Sales - O.J.T.

Savings Counselor - Course available at B.C.C. and O.J.T.

Secretary - (Bank, Health, Auto-Dealers, Trucking)
Secretarial courses are offered at B.C.C. Additional courses in the above areas were not warranted at this time according to the survey results

Short-Order Cook - Course is being implemented at B.C.C.

Teller - Course available at B.C.C. through the American Institute of Banking

The remaining occupational areas were investigated within B.C.C. to ensure that one or more of the following future actions were warranted:

1. Evaluation of existing program
2. Supplemental information to existing program
3. New curriculum design.

As a result of the B.C.C. on-campus validation of occupational needs, the following occupational priority areas and recommended actions were established for the study:

<u>Occupational Area</u>	<u>Action</u>
Business Data Processing Computer Programmer	Evaluation of existing program
Construction Secretary	Workshop design
Engineering Drafting	Curriculum development
Electronic Technician	Evaluation of existing program
Head Nurse Management	Curriculum development
Insurance Secretary	Workshop design

PROJECT PREPARATION PROCEDURES

The coordinator and three members of the research team at the beginning of the project were concerned with becoming familiar with various aspects of the college and collecting information essential to the project. Following is a list of preparatory tasks undertaken by the team:

1. General orientation to B.C.C. and its various campuses -- Particular attention was given to understanding the procedures involved in introducing new courses on the three campuses.
2. Familiarity with the previous needs assessment study, its aims and objectives and its link to the current project.
3. An extensive library search was conducted of the ERIC system (Educational Resources Information Center). Topics researched included: implementing a task analysis; competency-based education; curriculum design; and current research in curriculum development, especially in vocational education.
4. In preparation for the extensive interviewing involved, the research team underwent a training session conducted by the Director of Institutional Research. The object was to make the team aware of how to conduct an effective interview with the least interference from personal bias. The session utilized the same format as the previous needs assessment (For more details, refer to Mehallis, 1978, PP. 16-19).
5. The occupational ranking sheets sent to employers to determine the priority training needs were processed. The resulting list was investigated to determine the priority occupational areas. All the high priority areas were examined to see if courses were already offered and whether these would satisfy the expressed needs of the employers..
6. Campus personnel involved in the selected areas were interviewed by the team to obtain the instructors' opinions of the current educational situation.

INTERVIEWING PROCEDURES FOR DATA COLLECTION

An outline of the general procedures followed by the research team for the interviewing process are listed below:

1. A list of the occupational areas to be researched was determined.
2. Mailing lists were established for each occupational area using a stratified random sampling.
3. Letters were mailed to personnel directors/supervisors indicating the project objectives and purpose of the projected interview. Personnel directors were advised that a member of the research team would be in contact with them (see Appendix B).
4. Personnel directors were contacted by phone to set up appointments.
5. Personal interviews were conducted with personnel directors involving Part A of the task analysis instrument. Time involved was approximately half an hour (see Appendix C) Part B was left at the company to be filled in at the convenience of the personnel director and mailed back to the college (see Appendix D).
6. Employee validations (see Appendix E) were mailed to the personnel directors to be filled in by a designated employees currently employed in the specified occupational position. Upon completion, questionnaires were returned to B.C.C. by mail.
7. Results of the surveys were coded and analyzed.
8. Letters were set out at the end of the project thanking personnel directors for participating and presenting a summary of the major findings of the project (see Appendix H).

ESTABLISHMENT OF THE ADVISORY BOARD

The advisory board was established to fulfill the first objectives of the project. The purpose and organization procedures involved are outlined below:

PURPOSE OF ADVISORY BOARD:

1. Assist research team in determining priorities for curriculum development and/or evaluation.
2. Give professional advice to the research team as needed.
3. Evaluate and critique the training program objectives developed.

PROCEDURES FOLLOWED WITH ADVISORY BOARD:

1. A survey was mailed to employers in occupational areas defined in the Employer Needs Assessment (Mehallis, 1978). Persons interested in serving in an advisory capacity in their respective occupational areas were asked to submit their name and address.
2. Volunteers in the occupational areas selected for further research were sent a letter extending an invitation to the inaugural board meeting. A list of the board members appears in Appendix G.
3. Volunteers in areas not selected were sent a letter requesting that they serve as a field advisory for the purpose of pilot testing the task analysis instrument.
4. The inaugural board meeting was held January 11, 1979. Persons attending were informed about the project and asked to evaluate the task analysis. The opportunity was given for members to express special interests, specify positions within the high priority areas, and mention any areas which may have been omitted.
5. Follow-up personal interviews were conducted with each board member to obtain more detailed information.
6. Board members were contacted as needed through the duration of the project.
7. At the conclusion of the project, all persons who had assisted in an advisory capacity received a letter of appreciation plus a summary of project findings.

INSTRUMENTATION

The variables to be included in the task analysis were determined by incorporating the objectives of the project, extensive library research, and discussions with relevant BCC campus personnel and community advisory organizations (Ft. Lauderdale Area Chamber of Commerce, Broward Industrial Board, and Urban League).

Following is a list of major variables and response format:

<u>Variables</u>	<u>Response Format</u>
1. Overall objective	1. Self-response
2. Educational requirements	2. Multiple choice
3. Salary	3. Yes-No; Self response
4. Working hours	4. Self response
5. Special tests	5. Yes-No; Self response
6. Employee interaction	6. Multiple choice
7. Promotion strategy	7. Yes-No; Self response; Multiple choice
8. Supervisory responsibilities	8. Yes-No; Self response
9. Special language requirements	9. Yes-No; Self response
10. Numbers employed in the position	10. Multiple choice categories
11. Availability of written job description	11. Self response
12. General skills check list	12. Yes-No checklist
13. Task Description a) Duty definition b) Frequency of performance c) Ranking of importance (where applicable) d) Steps involved (where applicable) e) Efficiency level (where applicable)	13. Self response and Likert- type scale
14. Equipment	14. Self response
15. Drafting skills checklist	15. Yes-No checklist

Since the project was concerned with several varied occupational areas the instrument was developed to be generic in design. A three-part questionnaire was drafted:

- Part A: General information pertaining to the position. Presented to the personnel director/supervisor in the form of a personal interview, designed to take no more than half an hour. (Appendix C)
- Part B: Detailed job description to be filled out by the personnel director/supervisor and returned to BCC by mail. (Appendix D)
- Part C: Employee Validation: To be filled out by a person currently employed in the position and returned to BCC by mail. (Appendix E).

The instrument was pilot-tested for the purpose of validation. Employers in occupational areas which were eliminated from the study were utilized as the test sample. The draft task analysis was submitted to the advisory board for evaluation, and relevant BCC campus personnel checked the format for relevancy to the particular occupational areas. Revisions were made in some areas, which were again tested before the final version of the task analysis was produced.

DATA ANALYSIS

Data were analyzed utilizing both descriptive and inferential statistics. Generic information obtained from Part A of the questionnaire was tabulated to determine the percentage frequency distributions for each of the six occupational areas. Part B obtained from the supervisor (employer) was used to identify tasks which were then listed for the employee validation (Part C). Data from Part C, in the form of Likert-type scales, were analyzed by calculating means and ranking the tasks in order of both frequency and importance.

The Statistical Package for the Social Sciences (SPSS) was used to determine adjusted frequencies and percentages, means, and standard deviations. Responses to the tasks analyses were manually ranked according to the mean response for both importance and frequency of tasks and were reported in tabular format. Only those responses which were above the midpoint were reported in the final tasks statements for each case.

Since a saturation sample was employed for each occupational area, there was no need to generalize beyond the samples studied. The Pearson product-moment correlation (r) was used to determine the extent of correlation between supervisors and employees with regard to characteristics of the job. The Chi-square one-sample test was used to determine goodness-of-fit for the six individual samples (each occupational area was treated independently of the others).

RESULTS, CONCLUSIONS, AND RECOMMENDATIONS FOR CURRICULA

General Results

Charts on the following pages depict the data obtained as relevant to each occupational area. The initial interviewee, or supervisor, was the personnel director for electronic technicians, construction secretaries, and insurance secretaries. The Director of Nursing provided the information for head nurses, while the supervisor and department manager did so for drafting and business data processing respectively.

Persons seeking employment in drafting, computer programming, or the secretarial areas are able to do so with a high school diploma, whereas the majority of employers of electronic technicians and head nurses indicated that education beyond the high school diploma was required. All the areas reported a 40-hour week except for insurance secretaries who mostly work 35 to 39 hours per week. Experience and merit were the primary bases for salary determination in all fields studied.

The number of employees in each company and number of persons employed in the position being studied covered the full range which exists in the county. The number of females employed was dependent on the size of the company and was not compared to the number of males employed. The number of minorities employed shows that electronic technicians tend to encompass the largest percentage of minorities, while the other occupational areas indicated relatively low percentages.

Supervisors indicated a general preference for much of the training to occur at one of the campuses as opposed to on-site in the company. North Campus was preferred for construction secretaries and Central Campus for

electronic technicians and drafters. Head nurses were interested in training on-site or at North and Central campuses.

Most persons, except those in drafting, entered the job at a fixed salary. Salary increases were made while they were working in the position. Salaries indicate that head nurses and computer programmers average the most. Electronic technicians exhibited the widest range from entry to maximum salary.

All fields tend to promote employees without requiring further training. The majority, other than insurance secretaries, do not require tests for entry, and they do not have special language requirements. All tables of these data follow.

Interviewee's Position in Company

Position:	Electronic Technician	Head Nurse	Drafting	Business Data Processing (Programmer)	Construction Secretary	Insurance Secretary
Personnel Director	73.3%	27.8%	15.0%	0	33.3%	73.3%
Assistant Personnel Director		5.6			11.1	
Owner	6.7				22.2	5.3
Department Manager				100.0		
Director of Nursing		50.0				
Head Engineer	10.0		10.0			
Senior Technician			5.0			
Office Manager	6.7					10.5
Production Manager			5.0		16.7	
Supervisor	3.3	11.1	50.0			10.5
No Response		5.6	15.0		33.3	

Supervisor Response to Minimal Educational Requirements (Question 2, Part A)

<u>Minimal Educational Requirements:</u>	<u>Electronic Technician</u>	<u>Head Nurse</u>	<u>Drafting</u>	<u>Business Processing Computer Programmer</u>	<u>Construction Secretary</u>	<u>Insurance Secretary</u>
No formal education	4.8%	0	0	0	7.7%	5.3%
High School Diploma	3.2	0	50.0%	30.8%	61.5	89.4
Technical/Trade School	20.6	25.0%	22.7	0	7.7	0
Certificate (1 year technical)	14.3	0	0	0	7.7	0
A.S. Degree (2 year)	20.6	58.3	0	30.8	0	5.3
4 year College	1.6	0	0	3.8	7.7	0
Masters Degree	0	0	0	0	0	0
Other	34.9	16.7	27.3	34.6	7.7	0

-32-

Number of Working Hours per Week (Part A, Question 5)

Hours	Electronic Technicians	Head Nurse	Drafting	Computer Programmer B.D.P.	Construction Secretary	Insurance Secretary
35 - 39	0	0	0	20.0%	0	89.5%
40	100.0%	94.4%	80.0%	75.0	100.0%	10.5
41 - 45	0	0	5.0	0	0	0
46 - 50	0	0	0	0	0	0
51 - 55	0	0	0	0	0	0
55 - 60	0	0	0	0	0	0
No Response	0	5.6	15.0	0	0	0

Basis for Salary Determination (Question 8, Part A)

Basis for Salary Determination	Electronic Technician	Head Nurse Management	Drafting	Business Processing Computer Programmer	Construction Secretary	Insurance Secretary
1. Commission	0	0	2.8%	0	8.4%	3.7%
2. Experience	30.0%	33.3%	36.1	31.0%	33.3	33.3
3. Education	20.0	12.1	16.7	6.9	0	7.4
4. Salary and Commission	0	0	2.8	0	0	3.7
5. Merit	20.0	36.3	36.1	41.4	33.3	33.3
6. Other	30.0	21.2	5.5	20.7	25.0	18.5

Total Number of Employees

Number of Employees	Electronic Technician N = 30	Head Nurse N = 18	Drafting N = 20	Business Data Processing (Programmer) N = 20	Construction Secretary N = 9	Insurance Secretary N = 19
Less than 50	10.0%	11.1%	45.0%	40.0%	77.7%	84.2%
50 - 99	20.0	11.1	5.0	0	0	6.2
100 - 199	20.0	11.1	20.0	0	0	12.5
200 - 499	23.3	33.3	25.0	15.0	11.1	0
500 or more	26.7	33.3	5.0	45.0	11.1	0

Total Number of People Employed in the Position (Part A, Question 21)

Number of Employees	Electronic Technicians	Head Nurse	Drafting	Computer Programmer B.D.P.	Construction Secretary	Insurance Secretary
0 - 5	36.7%	16.7%	45.0%	70.0%	5.56%	68.4%
6 - 10	16.7	27.8	25.0	20.0	11.1	26.3
11 - 20	6.7	38.9	5.0	5.0	11.1	0
21 - 50	20.0	11.1	5.0	0	0	0
50 or more	20.0	0	0	5.0	0	5.3
No Response	0	5.6	20.0	0	22.2	0

Number of Females Working in the Position (Part A, Question 22)

Number of Employees	Electronic Technicians	Head Nurse	Drafting	Computer Programmer B.D.P.	Construction Secretary	Insurance Secretary
None	40.0%	0	60.0%	30.0%	0	0
1 - 5	36.7	16.7%	20.0	55.0	37.5%	63.1%
6 - 10	6.7	27.8	5.0	15.0	37.5	31.6
11 - 15	3.3	27.8	0	0	12.5	0
16 - 20	3.3	11.1	0	0	12.5	0
21 - 25	0	11.1	0	0	0	0
26 - 30	10.0	5.5	0	0	0	0
Over 30	0	0	0	0	0	5.3
No Response	0	0	15.0	0	0	0

Number of Minorities Employed in the Position by Percentage of Response (Part A, Question 23)

Minorities Employed	Electronic Technician	Head Nurse	Drafting	Computer Programmer (B.D.P.)	Construction Secretary	Insurance Secretary
1 - 5	46.7%	38.8%	15.0%	35.0%	11.1%	31.6%
6 - 10	20.0	0	5.0	0	0	0
11 - 20	3.3	0	0	0	0	5.3
21 - 50	0	0	0	0	0	0
More than 50	3.3	0	0	0	0	0
None or No Response	26.7	61.1	80.0	65.0	88.9	63.2

Supervisor Response to Most Preferred Training Location (Question 28, Part A)

<u>Preferred Location for Training</u>	<u>Electronic Technicians</u>	<u>Head Nurse</u>	<u>Drafting</u>	<u>Business Data Processing Computer Programmer</u>	<u>Construction Secretary</u>	<u>Insurance Secretary</u>
B.C.C. North Campus	10.5%	19.0%	0	16.7%	60.0%	21.0%
B.C.C. Central Campus	57.9	23.8	66.7%	33.3	0	21.0
B.C.C. South Campus	10.5	14.3	16.7	0	0	5.3
On your site	10.5	28.6	0	33.3	20.0	36.8
Other	10.5	14.3	16.7	16.7	20.0	15.8

Existence of a Fixed Salary for Persons Entering the Position (Part A, Question 3)

Response:	Electronic Technicians	Head Nurse	Drafting	Business Data Processing (Programmer)	Construction Secretary	Insurance Secretary
Yes	70.0%	77.8%	35.0%	80.0%	44.4%	78.9%
No	30.0	16.7	45.0	20.0	11.1	5.3
No Response	0	5.6	20.0	0	44.4	15.8

Are Salary Increases Made While Working in the Position? (Part A, Question 6)

Response:	Electronic Technicians	Head Nurse	Drafting	Business Data Processing (Programmer)	Construction Secretary	Insurance Secretary
Yes	100.0%	94.4%	75.0%	100.0%	55.6%	100.0%
No	0	0	5.0	0	11.1	0
No Response	0	5.6	20.0	0	33.3	0

Salary Per Week (Part A, Question 4 & 7)

	<u>Range</u>	<u>Mean</u>
Electronic Technician		
Entry:	\$130 - \$280	\$168.28
Maximum:	\$170 - \$475	\$280.00
Head Nurse		
Entry:	\$205 - \$286	\$251.21
Maximum:	\$296 - 396	\$350.00
Drafting		
Entry:	\$121 - \$240	\$171.28
Maximum:	\$200 - \$326	\$268.16
Business Data Processing		
Entry:	\$160 - 497	\$222.26
Maximum:	\$225 - \$627	\$422.83
Construction Secretary		
Entry:	\$101 - 216	\$126.16
Maximum:	\$100 - \$300	\$215.14
Insurance Secretary		
Entry:	\$122 - \$159	\$104.89
Maximum:	47 \$185 - \$315	\$205.50

Response to Whether Employees Are Promoted Without Further Training (Part A, Question 12)

Response:	Electronic Technicians	Head Nurse	Drafting	Business Data Processing (Programmer)	Construction Secretary	Insurance Secretary
Yes	93.3%	83.3%	65.0%	75.0%	88.9%	57.9%
No	6.7	5.6	15.0	25.0	11.1	15.8
No Response	0	11.1	20.0	0	0	26.3

Response to Special Test Requirements (Part A, Quest. 9)

Response:	Electronic Technicians	Head Nurse	Drafting	Business Data Processing (Programmer)	Construction Secretary	Insurance Secretary
Yes	26.7%	22.2%	15.0%	35.0%	22.2%	78.9%
No	73.3	66.7	65.0	65.0	11.1	0
No Response	0	11.1	20.0	0	66.7	21.1

Existence of Special Language Requirements (Part A, Question 17)

Response:	Technicians	Head Nurse	Drafting	Business Data Processing (Programmer)	Construction Secretary	Insurance Secretary
Yes	0	0	0	25.0%	0	0
No	100.0%	94.4%	80.0%	75.5	77.8%	100.0%
No Response	0	5.6	20.0	0	22.2	0

BUSINESS DATA PROCESSING: COMPUTER PROGRAMMER RESULTS SUMMARY

Primary Objective of the Position

The primary objective of a computer programmer is to write, interpret, modify, maintain, develop, and design software programs.

Supervisory Responsibilities

There usually are no supervisory responsibilities. However, 20% of the supervisors said that occasionally the programmer will:

- a) Lead individual projects
- b) Supervise other programmers
- c) Supervise operators and keypunchers

Minimum Education

Experience (listed as "Other"), a high school diploma, or A.S. Degree were cited as minimum requirements.

Entry Tests

Most employers do not require entry tests, however 26% of supervisors in the sample did mention test requirements. The type of tests included the following:

Basic aptitude test

Basic logic test

Civil Service test

Programming aptitude test

Language Requirements

There are no special foreign language requirements.

Safety or Emergency Requirements

The majority of supervisors felt the question was not applicable to programming. Only brief mention was made of the following:

- a) General safety and security procedures
- b) Recovery from a power failure situation
- c) Equipment breakdown

Hours Worked

Work hours are generally 40 hours per week.

Entry Salary

Salary is fixed at entry and averages \$222 per week, with a range from \$160 to \$497.

Maximum Salary

The maximum salary ranges from \$225 to \$627 and averages \$423 per week.

Basis for Salary Determination

Salary is determined:

- (1) merit and
- (2) experience

Salary increases are made on the job.

Basis for Promotion

An associate (A.S.) degree programmer could advance to the position of systems analyst, but this would probably require additional formal training to obtain a degree. Below is a chart which indicates the percentage of affirmative responses out of the entire sample for each method of promotion. Supervisors cited "performance evaluation" as the prevalent mode for promotion, while employees said "experience" was most important with "performance evaluation" being second.

Question: On what basis is a person promoted?

	Supervisor's Affirmative ("Yes") Response	Employee's Affirmative ("Yes") Response
Promotion on merit	20.0%	45.0%
Seniority	15.0	5.0
Additional on-the- job training	20.0	25.0
Further outside education	25.0	25.0
Performance evaluation	55.0	50.0
Testing	0	5.0
Experience	30.0	35.0
Commission	0	0
Other	30.0	0

Interaction

The computer programmer interacts primarily with supervisors and fellow employees as indicated in the chart below:

Question: In the position with whom does the employee interact?

<u>Interaction</u>	<u>Supervisor's Affirmative ("Yes") Response</u>	<u>Supervisor's Affirmative ("Yes") Response</u>
No One	0	0
Fellow Employees	95.0%	55.0%
Supervisors	100.0	55.0
Customers	55.0	10.0
General Public	0	0
Government Officials	0	5.0
Other	15.0	0

Preferred Training Location

Response to the item regarding preferred training location was inadequate to identify a specific location.

General Skills

Verbal skills were considered most important, however, most respondents did not complete the general skills portion of the questionnaire. The table on the following page contains the response to the general skills checklist.

Business Data Processing Programmer

General Skills Checklist

Skills

Response	Manual		Mathematical		Reading		Interpretation	
	Supervisor	Employee	Supervisor	Employee	Supervisor	Employee	Supervisor	Employee
Extremely Important	5.0%	10.0%	20.0%	0	5.0%	0	20.0%	0
Very Important	0	0	5.0	0	25.0	0	10.0	0
Important	10.0	30.0	10.0	0	5.0	0	5.0	0
Unimportant	15.0	10.0	0	0	0	0	0	0
Very Unimportant	0	0	0	0	0	0	0	0
Extremely Unimportant	5.0	5.0	0	0	0	0	0	0
No Response	65.0	45.0	65.0	100.0	65.0	100.0	65.0	100.0

148

Skills

Response	Verbal		Written		Personal Relations		Supervision	
	Supervisor	Employee	Supervisor	Employee	Supervisor	Employee	Supervisor	Employee
Extremely Important	20.0%	25.0%	15.0%	20.0%	20.0%	20.0%	5.0%	5.0%
Very Important	5.0	15.0	20.0	10.0	5.0	15.0	5.0	5.0
Important	10.0	15.0	0	25.0	10.0	20.0	5.0	20.0
Unimportant	0	0	0	0	0	0	20.0	25.0
Very Unimportant	0	0	0	0	0	0	0	0
Extremely Unimportant	0	0	0	0	0	0	0	0
No Response	65.0	45.0	65.0	45.0	65.0	45.0	65.0	45.0

Forecast

Data processing can be divided into two types: business and scientific. Programmers involved in business data processing are employed in a variety of companies, both large and small, that utilize computers. There are an estimated 800 programmers in Broward County with a projected demand of 1,200 by 1985. Job openings occur at an annual rate of 60, with 50 of those for expansion purposes and 10 for replacement (SFES, 1979).

Observations

1. The expansion of business data processing and the increased demand for programmers is very evident. Some possible reasons for this were expressed in the 1978 Computer Salary Planning Guide. "As a result of technological advancement combined with substantially reduced cost, the mini-computer now stands at the threshold of a growth explosion. The main thrust of this growth lies in two areas: distributed processing and small business or commercial applications".
2. The changing nature of the field was mentioned in the Business Data Programme guide to recruiting and retaining computer professionals:

"The computer field is in a constant state of technological change. Just as some computer hardware becomes obsolete from one year to the next, so do some computer people".
3. Time was mentioned as one of the most important factors when designing any computer training course, especially when the student is currently employed in the field.
4. Career changes seem to be occurring due to the increasing use of computers. Bookkeepers are being replaced by accountants who come into a business on a part-time basis. More accountants are signing up for data processing courses.
5. There is an evident shortage of computer personnel in South Florida. Considerable advertising is done to attract personnel from the North. However, salaries appear to be much lower in the South resulting in considerable difficulty in attracting people to Florida.

6. The need for continuing education has been mentioned in computer literature:

"Maintaining the same application system year after year can create substantial but narrow expertise which is not of much benefit or stimulation to the individual. The larger the company, the greater this danger of limited exposure or 'overspecialization'. Periodic opportunities for training sessions and company-sponsored short courses are available at many colleges which tend to encourage the feeling that the company is interested in the individual and in his or her professional development".

7. It was proposed that the programmer is fast becoming the most expensive item in data processing. Previously greater time and effort were needed to produce validated programs. Since machinery has become more sophisticated, less effort is needed.

Importance of Task

Computer Programmer: Business Data Processing	(1) Extremely Important	(2) Very Important	(3) Somewhat Important	(4) Somewhat Unimportant	(5) Very Unimportant	(6) Extremely Unimportant	Mean
Analyze statements of problems for conversion to logical flowcharts and a sequence of symbolic processing instructions	36.4%	45.5%	18.2%	0	0	0	1.82
Be conversant in: COBOL	55.6	11.1	22.2	11.1%	0	0	1.89
BASIC	0	0	0	33.3	0	66.7%	5.33
RPG 11	37.5	12.5	0	0	0	50.0	3.62
MARK IV	0	0	0	0	0	100.0	6.00
Assist in design and development of new systems	27.3	9.1	54.5	9.1	0	0	2.45
Develop sub-systems	0	27.3	63.6	9.1	0	0	2.82
Prepare schedule for system development	0	9.1	54.5	27.3	0	9.1	3.45
Confer with supervisor and user staff to resolve program intent.	36.4	45.5	18.2	0	0	0	1.82
Design new programs as requested	18.2	45.5	36.4	0	0	0	2.18
Revise existing programs to meet new requirements	45.5	27.3	27.3	0	0	0	1.82
Revise existing programs to increase operational efficiency	9.1	45.5	18.2	27.3	0	0	2.64
Review reports and documents	27.3	27.3	18.2	18.2	0	9.1	2.64
Learn new techniques - read manuals and documentation on new procedures and techniques	36.4	45.5	18.2	0	0	0	1.82
Establish and maintain effective working relationships with others	45.5	45.5	0	9.1	0	0	1.73

-5-

Computer Programmer: Business Data Processing

Importance of Task

	(1) Extremely Important	(2) Very Important	(3) Somewhat Important	(4) Somewhat Unimportant	(5) Very Unimportant	(6) Extremely Unimportant	Mean
Assist in training of "trainee" programmers	0	36.4	18.2	18.2	9.1	18.2	3.55
Assist the Systems Analyst	0	50.0	40.0	0	0	10.0	2.80
Review the budget to ascertain potential for further systems development	0	18.2	0	18.2	9.1	54.5	4.82
Recover the computer from a power failure condition	18.2	0	18.2	0	27.3	36.4	4.27
Review any program revisions made to ensure proper implementation	36.4	54.5	0	0	9.1	0	1.91
Manually check programs for logic errors and make corrections as required	27.3	63.6	0	9.1	0	0	1.91
Prepare sample data to test programs for logic errors, accuracy and reliability	27.3	54.5	18.2	0	0	0	1.91
Prepare computer input/output forms and record layouts	9.1	27.3	63.6	0	0	0	2.55
Prepare narratives describing storage allocations, formats, purposes and usage of forms and/or records	0	27.3	72.7	0	0	0	2.73
Prepare narratives or program comments describing program function and program flow	9.1	63.6	27.3	0	0	0	2.18
Prepare written instructions for computer operators	18.2	45.5	27.3	9.1	0	0	2.27
Introduce standards for reporting and documentation	0	18.2	27.3	36.4	0	18.2	3.73
Prepare final documentation	27.3	36.4	36.4	0	0	0	2.09
Evaluate impact of proposed or revised system	27.3	18.2	9.1	18.2	9.1	18.2	3.18

	(1)	(2)	(3)	(4)	(5)	(6)	
	Continuously	Regularly	Occasionally	Seldom	Emergency Situation Only	Never	Mean
<u>Computer Programmer:</u>							
<u>Business Data Processing</u>							
Analyze statements of problems for conversion to logical flowcharts and a sequence of symbolic processing instructions	27.3%	63.6%	9.1%	0	0	0	1.82
Be conversant in:							
COBOL	55.6	22.2	0	22.2%	0	0	1.89
BASIC	0	0	0	33.3	0	66.7%	5.33
RPG 11	37.5	0	12.5	0	12.5%	37.5	3.62
MARK IV	0	0	0	0	16.7	83.3	5.83
Assist in the design and development of new systems	27.3	27.3	45.5	0	0	0	2.18
Develop sub-systems	9.1	45.5	36.4	9.1	0	0	2.45
Prepare schedule for system development	9.1	9.1	45.5	27.3	0	9.1	3.27
Confer with supervisor and user staff to resolve program intent	54.5	27.3	18.2	0	0	0	1.64
Design new programs as requested	45.5	45.5	9.1	0	0	0	1.64
Revise existing programs to meet new requirements	54.5	27.3	18.2	0	0	0	1.64
Revise existing programs to increase operational efficiency	27.3	36.4	27.3	9.1	0	0	2.18
Review reports and documents for completeness and compliance with established standards and procedures	18.2	27.3	18.2	0	0	18.2	3.09

Computer Programmer:
Business Data Processing

	(1)	(2)	(3)	(4)	(5)	(6)	
	Continuously	Regularly	Occasionally	Seldom	Emergency Situation Only	Never	Mean
Learn new techniques - read manuals and documentation on new procedures and techniques.	45.5%	27.3%	18.2%	0	0	9.1%	2.09
Establish and maintain effective working relationships with others	63.6	27.3	9.1	0	0	0	1.45
Assist in training of "trainee" programmers	9.1	36.4	18.2	27.3%	0	9.1	3.00
Assist the systems analyst	10.0	30.0	40.0	10.0	10.0%	0	2.80
Review the budget to ascertain potential for further systems development	9.1	9.1	9.1	0	9.1	63.6	4.82
Recover the computer from a power failure condition	27.3	9.1	0	9.1	9.1	45.5	4.00
Review any program revisions made to ensure proper implementation	54.5	36.4	0	9.1	0	0	1.64
Manually check programs for logic errors and make corrections as required	45.5	36.4	18.2	0	0	0	1.73
Prepare sample data to test programs for logic errors, accuracy and reliability	45.5	45.5	9.1	0	0	0	1.64
Prepare computer input/output forms and record layouts	9.1	45.5	36.4	9.1	0	0	2.45
Prepare narratives describing storage allocations, formats purposes and usage of forms and/or records	0	45.5	45.5	9.1	0	0	2.64

Computer Programmer: <u>Business Data Processing</u>	(1)	(2)	(3)	(4)	(5)	(6)	
	<u>Continuously</u>	<u>Regularly</u>	<u>Occasionally</u>	<u>Seldom</u>	<u>Emergency Situation Only</u>	<u>Never</u>	<u>Mean</u>
Prepare narratives or program comments describing program function and program flow	27.3%	54.5%	9.1%	9.1%	0	0	2.00
Prepare written instructions for computer operators	36.4	45.5	18.2	0	0	0	1.82
Introduce standards for reporting and documentation	9.1	27.3	18.2	27.3	9.1%	9.1%	3.27
Prepare final documentation	45.5	36.4	18.2	0	0	0	1.73
Evaluate impact of proposed or revised system	18.2	36.4	0	27.3	9.1	9.1	3.00

Business Data Processing: Computer Programmer

Importance of Tasks by Mean Rank

<u>Mean Rank</u>	<u>Task Description</u>
	<u>Extremely Important:</u>
1.73	Establish and maintain effective working relations with others
1.32	Revise existing programs to meet new requirements
	Analyze statements of programs for conversion to logical flowcharts and a sequence of symbolic processing instructions
	Confer with supervisor and user staff to resolve program intent
	Revise existing programs to meet new requirements
	Learn new techniques -- read manuals and documentation on new procedures and techniques
1.89	Be conversant in COBOL
1.91	Review any program revisions made to ensure proper implementation
	Manually check programs for logic errors and make corrections
	Prepare sample data to test programs for logic errors, accuracy, and reliability
	<u>Very Important:</u>
2.09	Prepare final documentation
2.18	Design new programs as requested
	Prepare narratives or program comments describing program function and flow
2.27	Prepare written instructions for computer operators
2.45	Assist in the design and development of new systems
2.55	Prepare computer input/output forms and record layouts

<u>Mean Rank</u>	<u>Task Description</u>
------------------	-------------------------

Very Important:

- | | |
|------|--|
| 2.64 | Review reports and documents for completeness and compliance with established standards and procedures |
| | Revise existing programs to increase operation efficiency |
| 2.73 | Prepare narratives describing storage allocations, formats, purposes and usage of forms and/or records |
| 2.80 | Assist the systems analyst |
| 2.82 | Develop sub-systems |

Somewhat Important:

- | | |
|------|---|
| 3.18 | Evaluate impact of proposed or revised system |
| 3.45 | Prepare schedule for system development |
| 3.55 | Assist in training of "trainee" programmers |
| 3.62 | Be conversant in RPG II |
| 3.73 | Introduce standards for reporting and documentation |

BUSINESS DATA PROCESSING: COMPUTER PROGRAMMER

Frequency of Tasks by Mean Ranks

<u>Mean Rank</u>	<u>Task Description</u>
	<u>Continuously:</u>
1.45	Establish and maintain effective working relationships with others
1.64	Review any program revisions made to ensure proper implementation Confer with supervisor and user staff to resolve program intent Revise existing programs to meet new requirements Design new programs as requested Prepare sample data to test programs for logic errors, accuracy, and reliability
1.73	Manually check programs for logic errors and make corrections as required Prepare final documentation
1.82	Analyze statements of problems for conversion to logical flowcharts and a sequence of symbolic processing instructions Prepare written instructions for computer operators
1.89	Be conversant in COBOL
	<u>Regularly:</u>
2.00	Prepare narratives or program comments describing program function and program flow
2.09	Learn new techniques -- read manuals and documentation on new procedures and techniques
2.18	Revise existing programs to increase operational efficiency

<u>Mean Rank</u>	<u>Task Description</u>
------------------	-------------------------

	<u>Regularly:</u>
--	-------------------

2.18	Assist in the design and development of new systems
2.45	Prepare computer input/output forms and record layouts
	Develop sub-systems
2.64	Prepare narratives describing storage allocations, formats, purposes, and usage of forms and/or records
2.80	Assist the systems analyst

Business Data Processing: Computer Programmer

Additional Job Tasks

The following tasks were listed by respondents as important in addition to those expressed in the task analysis:

Operate equipment to test new program changes

Training user departments in equipment use

Be able to use instruction manuals

Use manuals to research information

Produce documentation explaining purpose and design of newly created files

Equipment Utilization

The equipment cited as being used by programmers can be divided into hardware and software. The items listed are generally applicable to the various types of computers in use.

Hardware:

Keypunch terminal

C.R.T. terminal

Line printer

Card reader

Tape drives

Direct access storage disk packs

Software:

Coding forms

Printer layout forms

Computer cards

Manuals

Flow charts

Documentation of program systems

Hardware:

Control processing unit

Processor

Calculator

Adding machine

Software:

HIPO (hierarchical input process output) worksheet

Programming standards manual

Safety and Emergency Procedures

The following safety and emergency procedures must be learned by the computer programmer:

1. Disaster recovery
2. Security and safeguard procedures assigned by the data processing department
3. Recovery from power failure
4. Equipment breakdown procedures
5. Correct handling of disk packs and storage information as needed

COMPUTER PROGRAMMING (BUSINESS DATA PROCESSING)

Recommendation: It is recommended that the information collected via this project be submitted by the Project Director to the Department of Data Processing at B.C.C. to be used as supplemental information and for program evaluation of their two-year Associate of Science program.

Objectives:

- To update current information regarding the tasks performed by computer programmers.
- To observe the technological changes, if any, in the industry and the possible educational repercussions.
- To provide an opportunity for computer personnel to evaluate courses currently offered.

Target Group: Persons who desire to be computer programmers and subsequently work in the business field would comprise the target group.

Assumptions: It is assumed that courses currently offered generally meet the requirements of Broward County employers. Any recommended modifications are due to current changes in the industry.

Suggested Program
Modifications:

1. Some modification of the introductory course (Fundamentals of Data Processing) is recommended to allow for more initial understanding of all the possible applications of the computer in the business world.
2. Restructuring of the program to allow for more "hands on" practice of the classroom theory. Due to the expense of computer time, it is important that the entry level programmer is proficient in implementing the learned procedures. This is particularly true in understanding file structures and how to use them.
3. Inclusion of a business course to the program, since to understand the environment in which they work. An introductory course in the first year could be followed with a more advanced course in the second year.
4. Inclusion of a course in formal logic, since this is fundamental to programming.
5. The increased usage of mini-computers by small businesses will increase the number of students requiring knowledge of BASIC.

5. Program restructuring is recommended so that students will commence learning BASIC a little later in the first year and have the opportunity to do more work in the second year.
6. As the field of data processing is vulnerable to technological change, it is recommended that the program be evaluated every two years to ensure that relevance is maintained.

CONSTRUCTION SECRETARY RESULTS SUMMARY

Primary Objective of the Position

The main objective of the secretary could be stated as having a good general knowledge of the operation to maintain correct flow of paperwork. Allied with this is the need to conduct all necessary administrative tasks and to assist the general public.

Supervisory Responsibilities

There was no evidence of construction secretaries being given any set of supervisory responsibilities, other than taking charge of the office in the absence of the supervisor or other superiors. However, the secretaries perceived that they had supervisory responsibilities twice as often as their supervisors indicated they did as demonstrated below:

Question: Does the employee have any supervisory responsibilities?

	Supervisor	Employee
Yes	22.2%	44.4%
No	44.4	22.2
No Response	33.3	33.3

Minimum Education

A high school diploma is the minimum education required for a construction secretary.

Entry Tests

None of the companies interviewed gave any special tests to applicants for the position of construction secretary.

Language Requirements

There are no special language requirements.

Safety or Emergency Requirements

There are no safety or emergency requirements.

Hours Worked

The average is 40 hours per week.

Entry Salary

The salary range for entry-level is from \$101 to \$216, however, the average is \$126 per week.

Maximum Salary

The maximum salary range goes up to \$300 with \$215 as the weekly average.

Basis for Salary Determination

Salary is determined by experience and merit.

Basis for Promotion

Most supervisors did not respond to the question regarding the basis for promotion. Most employees (construction secretaries) reported that on-the-job training results in promotion (see the chart below).

Question: On what basis is a person promoted?

	Supervisor's Affirmative ("Yes") Response	Employee's Affirmative ("Yes") Response
Promotion on merit	22.2%	22.2%
Seniority	0	11.1
Additional on-the-job training	11.1	33.3
Further outside education	0	22.2
Performance evaluation	22.2	22.2
Testing	0	11.1
Experience	0	22.2
Commission	0	11.1
Other	11.1	11.1

There does not appear to be any consistent promotional hierarchy for construction secretaries, however, mention was made of advancement to the following positions:

bookkeeper

department head

office manager

Preferred Training Location

North Campus was the preferred training location.

Interaction

The construction secretary interacts with fellow employees, the general public, government officials, and customers as demonstrated below:

Question: In the position, with which persons does the employee interact?

<u>Interaction</u>	Supervisor's Affirmative ("Yes") Response	Employee's Affirmative ("Yes") Response
No One	0	0
Fellow Employees	66.7%	66.7%
Supervisors	22.2	44.4
Customers	55.6	44.4
General Public	66.7	55.5
Government Officials	55.6	66.7
Other	22.2	22.2

General Skills

The most important general skills for a construction secretary are:

(1) reading, (2) verbal, and (3) written, as reported in the following chart:

CONSTRUCTION SECRETARY

Skills

Response	Manual		Mathematical		Reading		Interpretation	
	Supervisor	Employee	Supervisor	Employee	Supervisor	Employee	Supervisor	Employee
Extrememly Important	0	0	44.4%	11.1%	33.3%	55.6%	33.3%	55.6%
Very important	11.1%	11.1%	11.1	0	22.2	11.1	0	0
Important	0	22.2	0	33.3	0	0	11.1%	0
Unimportant	11.1	22.2	0	11.1	0	0	0	0
Very Unimportant	0	0	0	11.1	0	0	0	0
Extremely Unimportant	0	11.1	0	0	0	0	0	0
No response	77.8	33.3	44.4	33.3	44.4	33.3	56.6	44.4

CONSTRUCTION SECRETARY

Skills

<u>Response</u>	<u>Manual</u>		<u>Mathematical</u>		<u>Reading</u>		<u>Interpretation</u>	
	<u>Supervisor</u>	<u>Employee</u>	<u>Supervisor</u>	<u>Employee</u>	<u>Supervisor</u>	<u>Employee</u>	<u>Supervisor</u>	<u>Employee</u>
Extremely Important	0	0	44.4%	11.1%	33.3%	55.6%	33.3%	55.6%
Very Important	11.1%	11.1%	11.1%	0	22.2	11.1	0	0
Important	0	22.2	0	33.3	0	0	11.1	0
Unimportant	11.1	22.2	0	11.1	0	0	0	0
Very Unimportant	0	0	0	11.1	0	0	0	0
Extremely Unimportant	0	11.1	0	0	0	0	0	0
No Response	77.8	33.3	44.4	33.3	44.4	33.3	55.6	44.4

CONSTRUCTION SECRETARY

Skills

Response	Verbal		Written		Personal Relations		Supervision	
	Supervisor	Employee	Supervisor	Employee	Supervisor	Employee	Supervisor	Employee
Extremely Important	44.4%	55.6%	22.2%	55.6%	33.3%	33.3%	33.3%	33.3%
Very Important	11.1	0	11.1	0	0	11.1	22.2	22.2
Important	0	0	0	0	0	0	0	0
Unimportant	0	0	0	0	0	0	0	0
Very Unimportant	0	0	0	0	0	0	0	0
Extremely Unimportant	0	0	0	0	0	0	0	0
No Response	44.4	44.4	66.7	44.4	66.7	55.6	44.4	44.4

Forecast

Construction secretaries are employed by companies of varying sizes and functions. The level of responsibility given to secretaries varies within the different companies. Within Broward County, there are an estimated 2,500 construction companies falling into the following three categories:

- a) General building (homes)
- b) General building (public buildings/offices)
- c) General contractors (electrical/plumbing) (FSES, 1979)

Construction Secretary

	(1) Extremely Important	(2) Very Important	(3) Somewhat Important	(4) Somewhat Unimportant	(5) Very Unimportant	(6) Extremely Unimportant	Mean
<u>Knowledge:</u>							
Understand the basic principles of construction	75.0%	0	12.5%	0	12.5%	0	1.75
Have a good general knowledge of <u>equipment, tools</u> , and what they are used for	37.5	25.0%	12.5	0	12.5	12.5%	2.62
Be able to read and comprehend technical construction material	37.5	0	25.0	12.5%	0	25.0	3.12
<u>Tasks:</u>							
Take shorthand	12.5	0	50.0	25.0	0	12.5	3.38
Operate an efficient filing system	87.5	12.5	0	0	0	0	1.12
Type reports, forms, letters, etc.	75.0	0	12.5	12.5	0	0	1.62
Give information over the phone to men in the field	87.5	0	0	0	0	12.5	1.62
Handle all telephone enquiries in an efficient and effective manner	87.5	12.5	0	0	0	0	1.12
Order all necessary supplies	25.0	62.5	0	0	0	12.5	2.25
Supervise the scheduling of the work items	37.5	12.5	12.5	12.5	0	25.0	3.00
Ensure worksites are equipped with telephone, water and power	25.0	37.5	0	0	0	37.5	3.25
Prepare the company payroll	37.5	0	0	0	0	62.5	4.12
Balance the checkbook	12.5	0	12.5	0	0	75.0	5.00

		(1)	(2)	(3)	(4)	(5)	(6)	
<u>Construction Secretary</u>		<u>Continuously</u>	<u>Regularly</u>	<u>Occasionally</u>	<u>Seldom</u>	<u>Emergency Situation Only</u>	<u>Never</u>	<u>Mean</u>
<u>Knowledge:</u>								
1.	Understand the basic principles of construction	62.5%	12.5%	12.5%	12.5%	0	0	1.75
2.	Have a good general knowledge of equipment, tools, and what they are used for.	25.0	25.0	25.0	12.5	12.5%	0	2.62
3.	Be able to read and comprehend technical construction material.	25.0	12.5	25.0	12.5	0	25.0%	3.25
<u>Tasks:</u>								
1.	Take shorthand.	0	12.5	37.5	37.5	0	12.5	3.62
2.	Operate an efficient filing system	75.0	25.0	0	0	0	0	1.25
3.	Type reports, forms, letters etc.	75.0	0	12.5	12.5	0	0	1.62
4.	Give information over the phone to men in the field.	62.5	12.5	12.5	0	0	12.5	2.00
5.	Handle all telephone enquiries in an efficient and effective manner.	87.5	0	0	12.5	0	0	1.38
6.	Order all necessary supplies.	25.0	62.5	0	0	0	12.5	2.25
7.	Supervise the scheduling of the work teams .	37.5	12.5	12.5	12.5	0	25.0	3.00
8.	Ensure worksites are equipped with telephone, water and power.	12.5	37.5	12.5	0	0	37.5	3.50
9.	Prepare the company payroll.	12.5	25.0	0	0	0	62.5	4.12

	(1)	(2)	(3)	(4)	(5)	(6)	
<u>Construction Secretary</u>	<u>Continuously</u>	<u>Regularly</u>	<u>Occasionally</u>	<u>Seldom</u>	<u>Emergency Situation Only</u>	<u>Never</u>	<u>Mean</u>
<u>Tasks:</u>							
10. Balance the checkbook	0	12.5%	0	12.5%	0	75.0%	4.50
11. Maintain the company books.	0	12.5	12.5%	0	0	75.0	5.12
12. Make all necessary bank deposits	0	25.0	0	0	12.5%	62.5	4.88
13. Communicate between purchasing, sales office and customer.	37.5%	25.0	25.0	0	0	12.5	2.38
14. Co-ordinate work flow between field supervisor and customer.	50.0	0	0	12.5	0	37.5	3.25

Forms:

Process information using the following forms:

a) AIA documents	14.3	28.6	14.3	0	0	42.9	3.71
b) AIA contracts	50.0	0	12.5	0	0	37.5	3.12
c) quotation forms	25.0	25.0	12.5	0	0	37.5	3.38
d) government contracts	14.3	0	14.3	14.3	0	57.1	4.57
e) requisition forms	25.0	50.0	0	25.0	0	0	2.25
f) contracts	87.5	12.5	0	0	0	0	1.12
g) purchasing orders	100.0	0	0	0	0	0	1.00
h) sub-contract certification	25.0	12.5	12.5	0	0	50.0	3.88
i) releases	37.5	0	12.5	0	0	50.0	3.75
j) partial final releases	37.5	0	0	0	0	62.5	4.12
k) change orders	62.5	25.0	12.5	0	0	0	1.50

		(1)	(2)	(3)	(4)	(5)	(6)	
<u>Construction Secretary</u>						Emergency		
		<u>Continuously</u>	<u>Regularly</u>	<u>Occasionally</u>	<u>Seldom</u>	<u>Situation Only</u>	<u>Never</u>	<u>Mean</u>
<u>Forms</u>								
l)	building permits	62.5%	25.0%	0	0	0	12.5%	1.88
m)	work orders	50.0	25.0	0	0	0	25.0	2.50
n)	workmen's compensation forms	12.5	0	25.0%	0	12.5%	50.0	4.50

CONSTRUCTION SECRETARY

Importance of Tasks by Mean Rank

<u>Mean Rank</u>	<u>Task Description</u>
	<u>Extremely Important:</u>
1.00	Process information using contracts
	Process information using purchase orders
1.12	Operate an efficient filing system
	Handle all telephone inquiries in an efficient and effective manner
1.38	Process information using change orders
1.62	Type reports, forms, letters, etc.
	Give information over the phone to men in the field
1.75	Understand the basic principles of construction
	Process information using building permits
1.88	Process information using requisition forms
	<u>Very Important:</u>
2.25	Process information using work orders
	Communicate between purchasing, sales office, and customer
	Order all necessary supplies
2.62	Have a good general knowledge of equipment, tools and what they are used for
	<u>Somewhat Important</u>
3.00	Supervise the scheduling of the work teams
3.12	Process information using releases

<u>Mean Rank</u>	<u>Task Description</u>
	<u>Somewhat Important:</u>
3.12	Be able to read and comprehend technical construction material
3.25	Process information using AIA contracts
	Ensure worksites are equipped with telephone, water, and power.
	Co-ordinate work flow between field supervisor and customer
3.38	Process information using quotation forms
	Take shorthand
3.57	Process information using AIA documents
3.75	Process information using sub-contract certification
	Process information using workmen's compensation forms

CONSTRUCTION SECRETARY

Frequency of Tasks by Mean Rank

<u>Mean Rank</u>	<u>Task Description</u>
------------------	-------------------------

Continuously:

1.00	Process information using purchase orders
1.12	Process information using contracts
1.25	Operate an efficient filing system
1.38	Handle all telephone inquiries in an efficient and effective manner
1.50	Process information using change orders
1.62	Type reports, forms, letters, etc.
1.75	Understand the basic principles of construction
1.-8	Process information using building permits

Regularly:

2.00	Give information over the phone to men in the field
2.25	Order all necessary supplies
	Process information using requisition forms
2.38	Communicate between purchasing, sales office, and customer
2.50	Process information using work orders
2.62	Have a good general knowledge of equipment, tools and what they are used for

CONSTRUCTION SECRETARY

Additional Job Tasks

The following tasks were listed by construction secretaries as important in addition to those identified in the task analysis:

1. Invoice completed jobs
2. Review invoices
3. Have invoices approved by supervisor
4. Forward invoices to main office
5. Read blueprints
6. Locate building permits
7. Maintain liaison with other departments
8. Prepare scheduling of sub-contractors
9. Handle all necessary travel accommodations
10. Maintain appointment calendar for supervisor making any necessary changes
11. Take minutes during job meetings
12. Be able to comprehend H.O.W. and V.A./F.H.A. requirements
13. Schedule deliveries

Interaction with Others

The construction secretaries reported that they interact with the following types of people:

- Subcontractors
- Sales persons
- Inspectors
- Solicitors
- Architects
- Owners
- Company Presidents

Supervisory Responsibilities

The following supervisory responsibilities were reported by construction secretaries:

- Hiring and firing of clerks and secretaries
- Training new office personnel
- Supervision of supervisor's personal and business files
- Oversee office personnel

Equipment Utilization

Construction secretaries said they needed a working knowledge of the following equipment:

Typewriter

Calculator

Blue print machine

Xerox machine

Adding machine

Dictaphone

Mobile radios

Postage machine

Computer (mini-computer or CRT operation)

CONSTRUCTION SECRETARY

Recommendation: A workshop for construction secretaries should be implemented in the Department of Secretarial Science at B.C.C.

An advisory committee should be established providing an opportunity for construction employers to evaluate the developed curriculum.

Objectives in
Implementing the
Recommendations: To fulfill a training need in Broward County, as expressed by the employers and validated by the employees.

-To provide an opportunity for persons with secretarial background to learn the fundamentals of the construction field.

Target Group: Candidates would be primarily: secretaries already employed in the field; secretaries transferring from another field; and persons re-entering the workforce.

Assumptions: -A candidate for this workshop would have already acquired the necessary secretarial skills.
-The workshop should be concentrated and short-term. Scheduling should enable currently employed construction secretaries to undertake the workshop at night with provision for daytime classes.

Recommended
Workshop Topics:

From the information collected, the following topics
were recommended for inclusion in the workshop:

1. Basic principles of construction
2. Basic business law
3. Construction equipment
4. Construction terminology
5. Building Codes
6. Job planning: a) Job costing
 b) Estimating completion time
 c) Job scheduling
7. Public relations:
 - a) Dealing with sub-contractors
 crews and general personnel
 - b) Telephone techniques
 - c) Dealing with suppliers
 - d) Dealing with the general public
8. Coping with stress
9. Construction forms and their uses.

Basic texts: Construction Dictionary
Florida Building Codes

Dissemination of
Results:

Results should be disseminated to:

1. Construction employers and employees who participated in the project.
2. Department of Secretarial Science at B.C.C.
3. Organization of "Women in Construction"

INSURANCE SECRETARY RESULTS SUMMARY

Primary Objective of Position

The overall objective of the insurance secretary is to assist the insurance agent by performing administrative tasks and providing assistance to the public regarding insurance matters.

Supervisory Responsibilities

It was not evident, from the sample population, that insurance secretaries had any specific supervisory responsibilities other than occasionally overseeing the office clerks.

Minimum Education

A high school diploma is the minimum education required.

Entry Tests

Eighty-four percent of the insurance companies in the sample gave some form of entry test. The tests usually involved one or more of the following tests:

- a) Typing
- b) Filing
- c) Math
- d) General aptitude

Language Requirements

There are no special language requirements.

Safety and Emergency Requirements

In the sample of companies interviewed, there were no safety or emergency procedures required of an insurance secretary.

Hours Worked

The average weekly hours worked were between 35 and 39.

Entry Salary

The average entry salary was \$105 per week with a range from \$122 to \$159.

Maximum Salary

The maximum salary ranges from \$185 to \$315 with an average of \$205 per week.

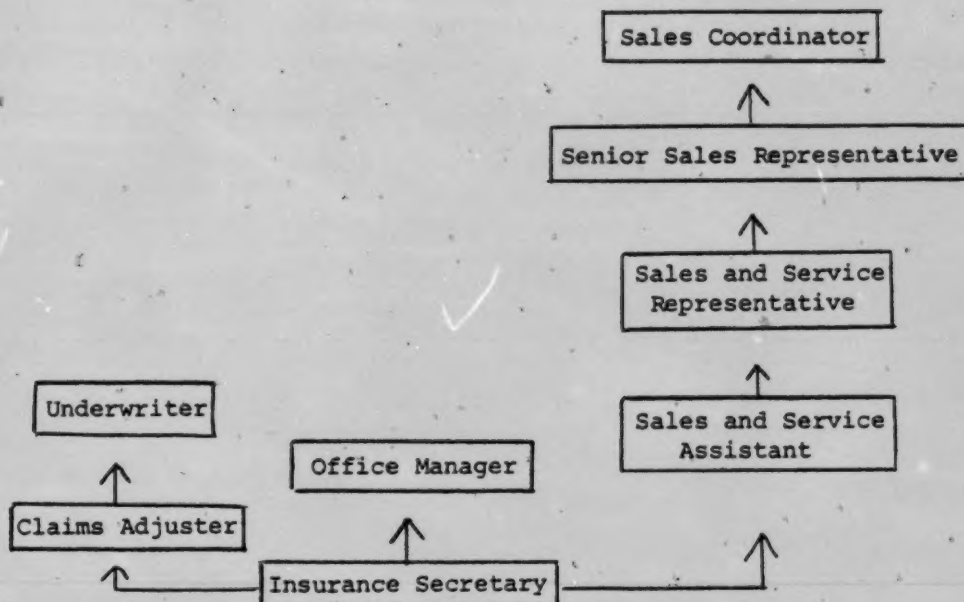
Basis for Salary Determination

Salary is determined by experience and merit.

Basis for Promotion

The positions to which an insurance secretary can be promoted vary depending upon the opportunities offered within a particular company.

Following is an outline of some of the possible areas into which a secretary can move:



Promotion usually occurs without additional education. Supervisors reported that such advances are based on merit, while employees indicated that experience was the most important determinant for promotion (see the table below):

Question: On what basis is a person promoted?

	Supervisor's Affirmative ("Yes") Response	Employee's Affirmative ("Yes") Response
Promotion on merit	36.8%	31.6%
Seniority	0	0
Additional on-the-job training	10.5	15.8
Further outside education	0	5.3
Performance evaluation	42.1	31.6
Testing	5.3	0
Experience	10.5	31.6
Commission	5.3	0
Other	5.3	0

Interaction

The employee interacts with supervisors, fellow employees, customers, and the general public. In general, supervisors perceive interaction between the employee and other individuals at a significantly higher rate than the employee.

Question: In the position, with whom does the employee interact?

	Supervisor's Affirmative ("Yes") Response	Employee's Affirmative ("Yes") Response
No One	5.3%	0
Fellow Employees	94.7	42.1%
Supervisors	100.0	36.8
Customers	94.7	36.8
General Public	63.2	36.8
Government Officials	0	0
Other	15.8	10.5

Preferred Training Location

On-site training was most preferred.

General Skills

The most important general skill is interpretation. The table on the following page depicts all results for general skills of insurance secretaries.

INSURANCE SECRETARY
General Skills Checklist

Response	Manual		Mathematical		Reading		Interpretation	
	Supervisor	Employee	Supervisor	Employee	Supervisor	Employee	Supervisor	Employee
Extremely Important	26.3%	15.8%	26.3%	5.3%	36.8%	10.5%	47.4%	21.1%
Very Important	10.5	15.8	15.8	26.3	15.8	21.1	10.5	10.5
Important	15.8	5.3	21.1	5.3	10.5	5.3	0	10.5
Unimportant	5.3	0	0	5.3	0	5.3	5.3	0
Very Unimportant	5.3	5.3	0	5.3	0	0	0	0
Extremely Unimportant	0	0	0	0	0	5.3	0	5.3
No Response	36.8	57.9	36.8	52.6	36.8	52.6	36.8	52.6

-93-

Skills

Response	Verbal		Written		Personal Relations		Supervision	
	Supervisor	Employee	Supervisor	Employee	Supervisor	Employee	Supervisor	Employee
Extremely Important	36.8%	31.6%	31.6%	36.8%	36.8%	26.3%	5.3%	5.3%
Very Important	21.1	10.5	21.1	0	21.1	5.3	10.5	10.5
Important	5.3	5.3	5.3	0	5.3	10.5	36.8	5.3
Unimportant	0	0	5.3	5.3	0	0	10.5	21.1
Very Unimportant	0	0	0	0	0	0	0	0
Extremely Unimportant	0	0	0	5.3	0	5.3	0	5.3
No Response	36.8	52.6	36.8	52.6	36.8	52.6	36.8	52.6

Forecast

Insurance secretaries are employed by companies of varying sizes within Broward County. There are a total of 506 insurance companies, including agents and brokers (SFES, 1979).

Insurance Secretary

	(1)	(2)	(3)	(4)	(5)	(6)	
	Extremely Important	Very Important	Somewhat Important	Somewhat Unimportant	Very Unimportant	Extremely Unimportant	Mean
Handle all enquires made by walk-in customers	50.0%	25.0%	12.5%	12.5%	0	0	1.88
Check appointment calendar daily, call customers if appointments can't be kept.	28.6	14.3	14.3	0	14.3	28.6	3.43
Prepare statements of office expenses	14.3	14.3	14.3	0	14.3	42.8	1.14
Prepare monthly reports	37.5	37.5	12.5	0	12.5	0	2.12
Prepare group proposals	14.3	0	28.6	0	14.3	42.8	4.29
Prepare material for computer processing	28.6	42.8	28.6	0	0	0	2.00
Use CRT to input information	0	33.3	0	0	0	66.7	4.67
Process information from insurance companies	14.3	14.3	14.3	28.6	0	28.6	2.86
Send correspondence to insurance companies	85.7	0	14.3	0	0	0	1.29
Explain coverages and charges to applicants	50.0	0	12.5	0	0	37.5	3.12
Rate quotes for applicants - decide on coverage and classification	28.6	0	0	0	14.3	57.1	4.43
Figure commission on applications	37.5	0	12.5	0	12.5	37.5	3.62
Check completed applications for accuracy	100.0	0	0	0	0	0	1.00
Fill out claims	62.5	12.5	12.5	0	0	12.5	2.00
Type using telex	0	14.3	14.3	0	14.3	57.1	4.86
Bill policy holders	14.3	14.3	0	0	14.3	57.1	4.57

-96-

Insurance Secretary cont'd.

	(1) Extremely Important	(2) Very Important	(3) Somewhat Important	(4) Somewhat Unimportant	(5) Very Unimportant	(6) Extremely Unimportant	Mean
Maintain employee records	62.5	0	12.5	0	12.5	12.5	2.38
Prepare brochures and literature regarding various programs	28.6	0	42.8	0	0	28.6	3.29
Maintain a set of accounts	57.1	0	0	0	0	42.9	3.14
Perform tasks requiring a knowledge of insurance terminology	75.0	0	12.5	0	0	12.5	1.88
Operate office machinery	100.0	0	0	0	0	0	1.00
Act as an administrative assistant	37.5	12.5	25.0	0	12.5	12.5	2.75
Perform routine clerical tasks	62.5	37.5	0	0	0	0	1.38
Assist sales representative as requested	62.5	12.5	0	0	0	25.0	2.38
Open mail, sort and distribute appropriately	50.0	37.5	12.5	0	0	0	1.62
Maintain files	62.5	37.5	0	0	0	0	1.38
Answer telephone, transferring calls where necessary	37.5	37.5	12.5	0	12.5	0	2.12
Receive any complaints over the telephone and in person	50.0	25.0	12.5	0	0	12.5	2.12
Sell policies over the phone	0	0	28.6	0	0	71.4	5.14
Take quotes over the phone	0	28.6	14.3	0	0	57.1	4.43

-97-

Insurance Secretary cont'd.

	(1) Extremely Important	(2) Very Important	(3) Somewhat Important	(4) Somewhat Unimportant	(5) Very Unimportant	(6) Extremely Unimportant	Mean
Take dictation over the phone	0	14.3	28.6	0	14.3	42.8	4.43
Take dictation in person	50.0	12.5	12.5	0	12.5	12.5	2.50
Type and proofread letters, stencils, reports	62.5	25.0	0	12.5	0	0	1.62
Type manuscripts	14.3	14.3	14.3	28.6	14.3	14.3	3.57
Take dictation from dictaphone	14.3	14.3	14.3	0	0	57.1	4.29
Take dictation from taperecorder	14.3	14.3	0	0	14.3	57.1	4.57
Write checks	12.5	37.5	0	0	12.5	37.5	3.75
Pay bills, write receipts and keep records	20.0	40.0	0	20.0	20.0	0	2.80

	(1)	(2)	(3)	(4)	(5)	(6)	
	Continuously	Regularly	Occasionally	Seldom	Emergency Situation Only	Never	Mean
<u>Insurance Secretary</u>							
Handle all enquiries made by walk-in customers	50.0%	12.5%	37.5%	0	0	0	1.88
Check appointment calendar daily, call customers if appointments can't be kept.	14.3	28.6	14.3	0	0	42.9	3.71
Prepare statements of office expenses	28.6	0	14.3	0	0	57.1	4.14
Prepare monthly reports	42.8	42.8	14.3	0	0	14.3	2.25
Prepare group proposals	14.3	14.3	14.3	0	0	57.1	4.29
Prepare material for computer processing	25.0	25.0	37.5	0	0	12.5	2.62
Use CRT to input information	0	16.7	16.7	0	0	66.7	4.83
Process information from insurance companies	14.3	14.3	14.3	28.6%	0	28.6	3.71
Send correspondence to insurance companies	57.1	28.6	14.3	0	0	0	1.57
Explain coverages and charges to applicants	25.0	12.5	12.5	12.5	0	37.5	3.62
Rate quotes for applicants - decide on coverage and classification	28.6	0	0	0	0	71.4	4.57
Figure commission on applications	25.0	0	0	12.5	12.5%	50.0	4.38
Check completed applications for accuracy	80.0	0	0	0	20.0	0	1.80
Fill out claims	37.5	25.0	12.5	12.5	0	12.5	2.50
Type using telex	0	28.6	0	0	0	71.4	4.86
Bill policy holders	0	28.6	0	0	0	71.4	4.86

	(1)	(2)	(3)	(4)	(5)	(6)	
<u>Insurance Secretary cont'd</u>	<u>Continuously</u>	<u>Regularly</u>	<u>Occasionally</u>	<u>Seldom</u>	<u>Emergency Situation Only</u>	<u>Never</u>	<u>Mean</u>
Maintain employee records	50.0	12.5	12.5	0	0	25.0	2.50
Prepare brochures and literature regarding various programs	28.6	0	28.6	14.3	0	28.6	3.43
Maintain a set of accounts	57.1	0	0	0	0	42.9	3.14
Perform tasks requiring a knowledge of insurance terminology	75.0	0	12.5	0	0	12.5	1.88
Operate office machinery	87.5	12.5	0	0	0	0	1.12
Act as an administrative assistant	25.0	12.5	37.5	0	0	25.0	3.12
Perform routine clerical tasks	75.0	12.5	0	0	12.5	0	1.62
Assist sales representative as requested	62.5	12.5	0	0	0	25.0	2.38
Open mail, sort and distribute appropriately	62.5	12.5	0	12.5	12.5	0	2.00
Maintain files	62.5	25.0	0	0	12.5	0	1.75
Answer telephone, transferring calls where necessary	50.0	25.0	12.5	0	12.5	0	2.00
Receive any complaints over the telephone and in person	50.0	0	37.5	0	0	12.5	2.38
Sell policies over the phone	0	14.3	14.3	0	0	71.4	5.00
Take quotes over the phone	0	28.6	0	14.3	0	57.1	4.57
Take dictation over the phone	0	0	42.9	0	0	57.1	4.71
Take dictation in person	37.5	12.5	25.0	0	0	25.0	2.88
Type and proofread letters, stencils, reports	50.0	37.5	0	12.5	0	0	1.75

	(1)	(2)	(3)	(4)	(5)	(6)	
<u>Insurance Secretary cont'd</u>	<u>Continuously</u>	<u>Regularly</u>	<u>Occasionally</u>	<u>Seldom</u>	<u>Emergency Situation Only</u>	<u>Never</u>	<u>Mean</u>
Type manuscripts	14.3%	0	28.6%	28.6%	0	28.6%	3.86
Take dictation from dictaphone	14.3	0	0	0	28.6%	57.1	5.00
Take dictation from tapercorder	14.3	0	0	0	14.3	71.4	5.14
Write checks	25.0	12.5%	25.0	0	0	37.5	3.50
Pay bills, write receipts and keep records	40.0	0	20.0	20.0	0	20.0	3.00

INSURANCE SECRETARY

Importance of Tasks by Mean Rank

<u>Mean Rank</u>	<u>Task Description</u>
	<u>Extremely Important:</u>
1.00	Check completed applications for accuracy
	Operate office machinery
1.14	Prepare statements of office expenses
1.29	Send correspondence to insurance companies
1.38	Perform routine clerical tasks
	Maintain files
1.62	Type and proofread letters, stencils, and reports
	Open mail, sort, and distribute appropriately
1.88	Perform tasks requiring a knowledge of insurance terminology
	Handle all inquiries made by walk-in customers
	<u>Very Important</u>
2.00	Fill out claims
	Prepare material for computer processing
2.12	Receive any complaints over the telephone and in person
	Prepare monthly reports
	Answer telephone, transferring calls where necessary
2.38	Assist sales representative as requested
	Maintain employee records

<u>Mean Rank</u>	<u>Task Description</u>
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	<u>Very Important:</u>
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2.50	Take dictation in person
2.75	Act as an administrative assistant
2.80	Pay bills, write receipts, and keep records
2.86	Process information from insurance companies

	<u>Somewhat Important:</u>
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3.12	Explain coverages and charges to applicants
3.14	Maintain a set of accounts
3.29	Prepare brochures and literature regarding various programs
3.43	Check appointment calendar daily, call customers if appointments can't be kept
3.57	Type manuscripts
3.62	Figure commission on applications
3.75	Write checks

INSURANCE SECRETARY

Frequency of Tasks by Mean Rank

<u>Mean Rank</u>	<u>Task Description</u>
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Continuously:

1.12	Operate office machinery
1.57	Send correspondence to insurance companies
1.62	Perform routine clerical tasks
1.75	Maintain files
	Type and proof read letters, stencils, and reports
1.80	Check completed applications for accuracy
1.88	Perform tasks requiring a knowledge of insurance terminology
	Handle all enquiries made by walk-in customers

Regularly:

2.00	Open mail, sort and distribute appropriately
	Answer telephone, transferring calls where necessary
2.25	Prepare monthly reports
2.38	Assist sales representative as requested
	Receive any complaints over the telephone and in person
2.50	Maintain employee records
	Fill out claims
2.62	Prepare material for computer processing
2.88	Take dictation in person

INSURANCE SECRETARY

Additional Job Tasks

The following job tasks were listed by insurance secretaries:

Balance check books

Prepare monthly reports

Update and maintain policies

Rate policies

Check that policies turned in by agents are filled in correctly

Figure out credit for company and agent

Keep clerical area running smoothly

Maintain good rapport with customers

Take good notes and information from customers, especially over the phone.

Equipment Utilization

Insurance secretaries reported using the following equipment:

Memory typewriter

Xerox machine

Dictaphone

IBM selectric

Copy machine

IBM 1967 terminal mimeograph

Dictionary

Telephone

Manuals

Stamp machine

Calculator

Typewriters

INSURANCE SECRETARY

Important of Tasks by Mean Rank

<u>Mean Rank</u>	<u>Task Description</u>
	<u>Extremely Important:</u>
1.00	Check completed applications for accuracy
	Operate office machinery
1.14	Prepare statements of office expenses
1.29	Send correspondence to insurance companies
1.38	Perform routine clerical tasks
	Maintain files
1.62	Type and proof read letters, stencils, and reports
	Open mail, sort, and distribute appropriately
1.88	Perform tasks requiring a knowledge of insurance terminology
	Handle all inquiries made by walk-in customers
	<u>Very Important:</u>
2.00	Fill out claims
	Prepare material for computer processing
2.12	Receive any complaints over the telephone and in person
	Prepare monthly reports
	Answer telephone, transferring calls where necessary
2.38	Assist sales representative as requested
	Maintain employee records

INSURANCE SECRETARY

Recommendation: It is recommended that a workshop for insurance secretaries be implemented by the Department of Secretarial Science at B.C.C.

Objectives in Implementing the Recommendations:

- To fulfill a training need in Broward county, as expressed by the employers and validated by the employees.
- To provide an opportunity for persons with a secretarial background to learn the fundamentals of the insurance industry.

Target Group: Secretaries already employed in the field; secretaries transferring from another field; and persons re-entering the work force.

Assumptions: A candidate for this workshop would have already acquired the necessary secretarial skills.

The workshop would be concentrated and short-term. Programming would enable currently employed insurance secretaries to undertake classes at night with provision made for those students able to attend during the day.

Recommended
Workshop Topics:

From the information collected the following topics are recommended for inclusion in the workshop:

1. Basic principles of insurance
2. Insurance forms and their uses
3. Processing insurance policies
4. Insurance terminology
5. Telephone techniques

Dissemination of
Results:

1. Project participants
2. Secretarial Science Department

DRAFTING RESULTS SUMMARY

Primary Objective of the Position

The main function of a drafter is to take the ideas of the engineer and transform them into reusable documents.

Supervisory Responsibilities

A drafter may occasionally supervise the junior drafter or detailer, but overall this position does not entail any prescribed supervisory responsibilities.

Minimum Education

A high school diploma or "other" were listed as the minimum education necessary for a drafter.

Entry Tests

Drafters are not usually required to take any special tests. However, it is common for employers to request drawing samples which demonstrate the applicants ability.

Language Requirements

There are no special foreign language requirements.

Safety or Emergency Requirements

Drafters are generally not required to have special safety training. Mention was made of knowing the appropriate safety equipment to wear in dangerous areas where actual fabrication of certain products takes place.

Hours Worked

Drafters work 40 hours per week.

Entry Salary

Entry salary ranges between \$121 and \$240 and averages at \$171 per week. There is usually no fixed entry-level salary.

Maximum Salary

The maximum salary range is between \$200 and \$326 with an average of \$268 per week.

Basis for Salary Determination

Salary is determined by: (1) experience and (2) merit.

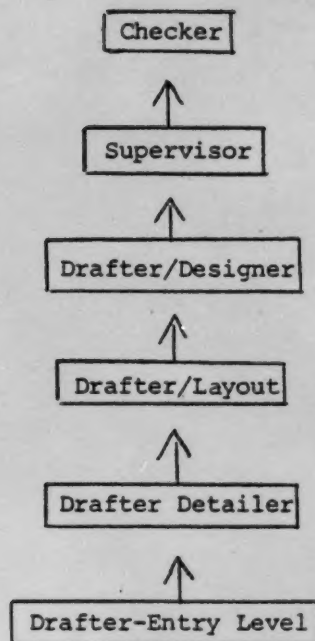
Basis for Promotion

Supervisors reported that promotion is based on merit, while employees said it was based on performance evaluation and experience without further training as indicated in the table below:

Question: On what basis is a person promoted?

	Supervisor's Affirmative ("Yes") Response	Employee's Affirmative ("Yes") Response
Promotion on merit	65.0%	40.0%
Seniority	25.0	20.0
Additional on-the-job training	25.0	25.0
Further outside education	25.0	35.0
Performance evaluation	35.0	45.0
Testing	0	0
Experience	35.0	45.0
Commission	0	0
Other	15.0	0

Positions and titles vary in drafting. Following is a generalized outline of positions to which a drafter can be promoted.



Preferred Training Location

The response was not sufficient to result in a definitive answer regarding the most preferred training location.

Interaction

The employee interacts with supervisors and fellow employees as demonstrated in the following chart.

Question: In the position with whom does the employee interact?

<u>Interaction</u>	<u>Supervisor's Affirmative ("Yes") Response</u>	<u>Employee's Affirmative ("Yes") Response</u>
No One	0	0
Fellow Employees	80.0%	60.0%
Supervisors	85.0	60.0
Customers	20.0	15.0
General Public	0	0
Government Officials	0	0
Other	10.0	20.0

Forecast

The type of drafting examined in this project is found in electronic, computer, and other industries concerned with the manufacture of engineered products. Since the companies vary in size and type of products, they have different drafting needs. The smaller the company, the more specialized the needs. The emphasis is on electronic and mechanical drafting. In Broward County, there are estimated to be 1,100 to 1,211 drafters in various categories. The projected demand for 1985 is 1,500 (FSES, 1979).

Observations

1. The skills required for drafting have not changed radically, but the equipment has. Education must keep abreast of technological changes so that the drafting curriculum at all levels, is relevant to the needs of industry.
2. Within the electronics industry there is a growing trend towards the utilization of computer-aided drafting. The automotive industry is already very involved and other companies are gradually acquiring the necessary equipment. Some possible repercussions of this trend are as follows:
 - a) Time Savings - Using the computer can cut by one-third the time taken to manually prepare the design and tape-up of a printed circuit board (P.C.B.). A single input into the computer can produce various outputs depending on what is required.
 - b) Accuracy - Every piece produced by the computer is accurate to within, + 0.001 in positional accuracy and within 0.0005 in line width accuracy.
 - c) There has been an increasing demand for high density printed circuit boards. This has increased the demand for computer-aided drafting, as the computer easily handles this complex task.

- d) As a result, there could be changes in skill requirements,
e.g., employers may not want drafters to have some
training and/or experience with computers.
- e) There could be possible changes in staffing requirements,
e.g., in a firm using computer-aided drafting, the work
done by the layout person would now be done by the computer.
- 3. There appears to be an increasing number of women entering the
field of drafting.
- 4. The present and projected growth of the manufacturing industry,
especially in electronics, indicates the need for reevaluation
of the positions: electronic technician; computer programmer; and
drafter.

	(1)	(2)	(3)	(4)	(5)	(6)	
<u>Drafting</u>	<u>Continuously</u>	<u>Regularly</u>	<u>Occasionally</u>	<u>Seldom</u>	<u>Emergency Situation Only</u>	<u>Never</u>	<u>Mean</u>
<u>Tasks</u>							
1. <u>Produce drawings from:</u>							
a) Engineers' rough sketches	33.3%	33.3%	33.3%	0	0	0	2.00
b) Illustrative references	25.0	33.3	25.0	0	0	16.7%	2.67
c) Lay-outs	50.0	33.3	16.7	0	0	0	1.67
d) Verbal instructions	50.0	33.3	8.3	8.3%	0	0	1.75
2. <u>P.C. Board design:</u>							
a) Produce lay-out schematic	22.2	33.3	11.1	22.2	0	11.1	2.78
b) Produce P.C. board taping	11.1	11.1	33.3	0	11.1%	33.3	3.89
c) Produce P.C. board specifications	12.5	0	12.5	25.0	25.0	25.0	4.25
3. <u>Mechanical design:</u>							
a) Produce mechanical lay-out	40.0	30.0	20.0	10.0	0	0	2.00
b) Make assembly layouts	40.0	50.0	0	10.0	0	0	1.80
c) Generate parts list	70.0	20.0	10.0	0	0	0	1.40
4. Prepare change orders for existing drawings	50.0	8.3	41.7	0	0	0	1.92
5. Make drawing changes conform to change orders	75.0	25.0	0	0	0	0	1.25
6. Document reasons for change	33.3	33.3	16.7	16.7	0	0	2.17
7. Copy old drawings	16.7	25.0	33.3	8.3	8.3	8.3	2.92
8. Touch up old lithographs	9.1	0	27.3	0	9.1	54.5	4.64
9. Make tracings in pencil or ink from original drawings	25.0	33.3	25.0	0	8.3	8.3	2.58

	(1)	(2)	(3)	(4)	(5)		
<u>Drafting</u>	<u>Continuously</u>	<u>Regularly</u>	<u>Occasionally</u>	<u>Seldom</u>	<u>Emergency Situation Only</u>	<u>Never</u>	<u>Mean</u>
10. Produce tracings making minor rearrangements of the dimensions under specific instructions	33.3	25.0	25.0	8.3	0	8.3	2.42
11. Operate the print machine	50.0	33.3	8.3	0	0	8.3	1.92
12. Maintain the drawing files	41.7	8.3	33.3	8.3	0	8.3	2.42
13. Maintain the specification files	16.7	16.7	8.3	25.0	8.3	25.0	3.67
14. Supervise detailers	0	25.0	16.7	16.7	16.7	25.0	4.00
15. Liaison with other departments	58.3	16.7	8.3	8.3	0	8.3	2.00
16. Prepare publication art work for manuals and other documents	9.1	0	45.4	9.1	9.1	27.3	3.91
17. Participate in design conferences	0	33.3	25.0	8.3	16.7	16.7	3.58
18. <u>Computer Aided Drafting:</u>							
a) Prepare information for the computer involving a knowledge of data processing	18.2	9.1	0	0	9.1	63.6	4.64
b) Operate the digitizer to input information into the computer; verify by requesting the computer to plot out the information	9.1	9.1	0	0	0	81.8	5.18

DRAFTING

Importance of Tasks by Mean Rank

<u>Mean Rank</u>	<u>Task Description</u>
	<u>Extremely Important:</u>
1.17	Make drawing changes conform to change orders
1.25	Produce drawings from engineers' rough sketches
	Produce drawings from layouts
1.33	Produce drawings from verbal instructions
1.64	Mechanical design: Generate parts list
1.83	Document reasons for change
	Prepare change orders for existing drawings
1.92	Operate the print machine
	<u>Very Important:</u>
2.00	Produce drawings from illustrative references
	Produce tracings making minor rearrangements of the dimensions under specific instructions
	Liaison with other departments
	Copy old drawings
	Mechanical design: Make assembly layouts
	Maintain the drawing files
	Mechanical design: Produce mechanical lay-out
2.25	Make tracings in pencil or ink from original drawings
2.58	Participate in design conferences
2.78	P.C. Board design: Produce lay-out schematic

<u>Mean Rank</u>	<u>Task Description</u>
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Somewhat Important:

3.08	Supervise detailers
3.25	Maintain the specification files
3.45	Prepare publication art work for manuals and other documents
3.90	P.C. Board design: Produce P.C. board taping

DRAFTING

Frequency of Tasks by Mean Rank

Mean Rank Task Description

Continuously:

1.25 Make drawing changes conform to change orders

1.40 Mechanical design: Generate parts list

1.67 Produce drawings from layouts

1.75 Produce drawings from verbal instructions

1.80 Mechanical design: Make assembly layouts

1.92 Operate the print machine

Prepare change orders for existing drawings

Regularly:

2.00 Liaison with other departments

Mechanical design: Produce mechanical lay-out

Produce drawings from engineers' rough sketches

2.17 Document reasons for change

2.42 Maintain the drawing files

Produce tracings making minor rearrangements of the dimensions
under specific instructions

2.58 Make tracings in pencil or ink from original drawings

2.67 Produce drawings from: Illustrative references

2.78 P.C. Board design: Produce lay-out schematic

2.92 Copy old drawings

DRAFTING

Additional Job Tasks

The following tasks were suggested as "important" by employees:

- Generate silkscreen artwork
- Tolerancing
- Choosing fasteners
- Generate outlines (installation drawings)
- Manufacturing processes
- Lettering
- Tool design
- Trigonometry
- Fastening methods
- Inking

Other Suggestions for Training Areas

The following areas were suggested for additional training of drafters:

- Technical algebra
- Silkscreen design
- Lithographic touch-up
- Design and taping

Other Suggestions for Training Areas (con't)

Tolerancing

Material strengths

Machining and manufacturing techniques

Sketching

Orthographic and isometric projection

Machine design

Metric system

Equipment Utilization

Drafters should know how to use the following equipment:

Triangles

Cepia

Scales

Inking equipment

Lead holders

French curves

Parallel bar

Blueline machine

Lettering set

Drafting machine

Type set (for silkscreening) Drafting table

Waxer (for silkscreening) Compass

Various templates

Mechanical drafting pencils

Velum

Machinery handbooks

Mylar paper

Printed circuit board

Grid paper

DRAFTING

Recommendation: An associate of science (two-year) degree program in drafting, with an emphasis in electronic drafting should be implemented at B.C.C.

Objectives:

- To fulfill a training need, as expressed by Broward County employers and validated by the employees.
- To update current information concerning the range of tasks performed by drafters.
- To investigate recent changes in the drafting field and ascertain any educational impacts.
- To gather any available information regarding future trends in the industry in Broward county.

Target group:

The program would be primarily directed to persons leaving high school who wish to gain an adequate drafting background before entering the field.

- Persons already employed as drafters could undertake some sections of the program to increase skills in specific areas.

Recommended Program Areas

The following areas were recommended for inclusion in the drafting program:

Technical algebra

Silkscreen design

Lithographic touch-up

Design and taping

Tolerancing

Material strengths

Machining and manufacturing techniques

Sketching

Orthographic and isometric projection

Machine design

Metric system

On the following page is a proposed program outline for drafting:

PROPOSED PROGRAM OUTLINE

1st Year

1st Semester

Basic Drafting 1	3	
Electronic Drafting	3	
Mathamatics 1	3	
English Writing	3	
Electronics 1	<u>3</u>	
		15

2nd Semester

Basic Drafting 2	3	
Mathamatics 2	3	
Psychology 1	3	
Technical Illustration	3	
Computer Processing	<u>3</u>	
		15

2nd Year

1st Semester

Production Practices	3	
Applied Geometry	4	
Physics 1	4	
Technical Writing	3	
Elective	<u>3</u>	
		17

2nd Semester

Electro-mechanical design	4	
Physics 2	4	
Electives	<u>6</u>	
		<u>14</u>
		61

ELECTRONIC TECHNICIAN RESULTS SUMMARY

Primary Objective of the position

The primary objective of the position is as follows:

1. Testing, repairing, evaluating, and maintaining various electronic equipment.
2. Troubleshooting - i.e. recognizing, defining, and dealing with problems as they arise.

Supervisory Responsibilities

An electronic technician does not usually have any specific supervisory responsibilities, however, there may be occasional need to:

- a) take charge in the absence of the department head
- b) supervise basic production
- c) supervise lower level technicians.

Minimum Education

Experience (listed as "Other") and technical/trade school or an A.S. degree are usually required.

Entry Tests

In the electronic technology sample, only 26% of the companies gave any testing.

These tests, as indicated below, varied depending on the type of company:

- Basic engineering test
- Basic electronics test
- Engineering department quiz
- Computer technician test
- Bell system qualification test
- General connector and resistance test
- General qualification test

Language Requirements

There are no special foreign language requirements.

Safety or Emergency Requirements

No companies in the sample expected any prior knowledge of safety procedures, however, 23 percent of the sample conducted their own safety training sessions and/or provided a company safety manual.

Hours Worked

The average is 40 hours per week.

Entry Salary

The average entry salary is fixed at \$168 per week with a range from \$130 to \$280 per week.

Maximum Salary

The maximum salary averages \$280 per week with a range from \$170 to \$475 per week.

Basis for Salary Determination

Salary is determined by amount of experience and increases on the job.

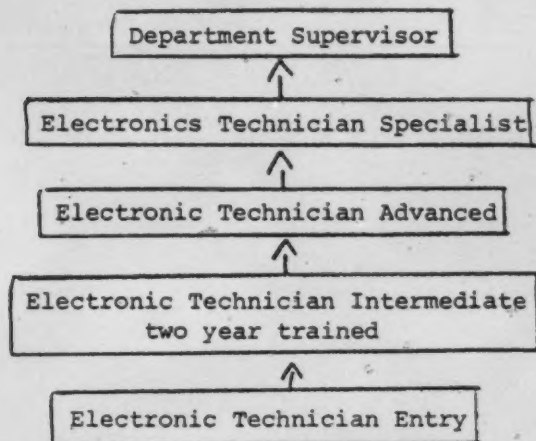
Basis for Promotion

Promotion is based on: (1) performance evaluation and (2) merit. Persons are usually promoted without further training. Below, the chart includes affirmative responses based on the entire sampling:

Question: On what basis is a person promoted?

	Supervisor's Affirmative ("Yes") Response	Employee's Affirmative ("Yes") Response
Promotion on merit	40.0%	36.7%
Seniority	13.3	6.7
Additional on-the- job training	10.0	10.0
Further outside education	6.7	13.3
Performance evaluation	60.0	30.0
Testing	0	3.3
Experience	23.3	20.0
Commission	0	3.3
Other	43.3	10.0

The exact title of positions to which a technician can be promoted varies within different companies. The following is a generalized outline of the promotional hierarchy within the field:



Interaction

The electronic technician interacts primarily with supervisors and fellow employees as indicated below:

Interaction	Supervisor's Affirmative ("Yes") Response (%)	Employee's Affirmative ("Yes") Response (%)
No One	0	0
Fellow Employees	93.3%	43.3%
Supervisors	100.0	43.3
Customers	6.7	6.7
General Public	6.7	0
Government Officials	3.3	0
Other	30.0	0

Training Location

Central Campus was the most preferred training location.

General Skills

Supervisors indicated that: (1) reading and (2) manual skills were most important. The employees did not indicate that any one specific general skill was most important as demonstrated on the next page.

Forecast

Electronic technicians are employed by a variety of companies concerned with the production of electronic and electro-mechanical components. Examples of the large range of products provided include: digital measurement and control systems, intelligence equipment, computer components, etc. A technician could be involved with fabricating, assembling, and/or testing. Presently there are an estimated 1,040 electronic technicians in Broward County. Job openings occur at an annual rate of 80 positions; 70 of these due to expansion and 10 for replacement purposes (FSES, 1979).

ELECTRONIC TECHNICIAN

General Skills Checklist

Skills

Response	Manual		Mathematical		Reading		Interpretation	
	Supervisor	Employee	Supervisor	Employee	Supervisor	Employee	Supervisor	Employee
Extremely Important	16.7%	6.7%	13.3%	6.7%	20.0%	20.0%	13.3%	16.7%
Very Important	26.7	13.3	10.0	3.3	30.0	13.0	26.7	16.7
Important	6.7	16.7	16.7	30.0	3.3	10.0	10.0	10.0
Unimportant	0	6.7	13.3	3.3	0	0	3.3	0
Very Unimportant	3.3	0	0	0	0	0	0	0
Extremely Unimportant	0	0	0	0	0	0	0	0
No Response	46.7	56.7	46.7	56.7	46.7	56.7	46.7	56.7

ELECTRONIC TECHNICIAN

General Skills Checklist

Skills

Response	Verbal		Written		Personal Relations		Supervision	
	Supervisor	Employee	Supervisor	Employee	Supervisor	Employee	Supervisor	Employee
Extremely Important	0	3.3%	0	3.3	6.7%	6.7%	0	3.3%
Very Important	30.0	26.7	26.7	20.0	10.0	13.3	3.3	10.0
Important	23.3	13.3	20.0	13.3	33.3	20.0	20.0	10.0
Unimportant	0	0	3.3	6.7	3.3	3.3	20.0	13.3
Very Unimportant	0	0	3.3	0	0	0	6.7	3.3
Extremely Unimportant	0	0	0	0	0	0	3.3	3.3
No Response	46.7	56.7	46.7	56.7	46.7	56.7	46.7	56.7

Electronic Technician

	(1)	(2)	(3)	(4)	(5)	(6)	
	Extremely Important	Very Important	Somewhat Important	Somewhat Unimportant	Very Unimportant	Extremely Unimportant	Mean
<u>Assembly and Fabrication Operations:</u>							
Wiring:	28.6%	35.7%	28.6%	0	0	7.1%	2.29
Soldering	42.9	42.9	7.1	0	0	7.1	1.93
Welding	0	0	0	8.3	33.3	58.3	5.50
Brazing	0	7.7	0	7.7	23.1	61.5	5.31
Drilling	0	7.1	28.6	14.3	28.6	21.4	4.29
Hole Punching	7.1	7.1	14.3	0	35.7	35.7	4.57
Insert components on P.C. board	15.4	38.5	23.1	0	15.4	7.7	2.85
Align electronic components	35.7	35.7	0	21.4	0	7.1	2.36
Conduct preventative maintenance by periodically checking and evaluation production and laboratory equipment.	30.8	23.1	15.4	7.7	15.4	7.7	2.77
Modify equipment as per engineering directions	38.5	38.5	7.7	7.7	7.7	7.7	2.54
Repair instruments returned by customers	50.0	21.4	14.3	0	7.1	7.1	2.14
Rework circuits	7.1	64.3	14.3	7.1	0	7.1	2.50
Operate drill press and grinder	7.1	0	14.3	28.6	7.1	35.7	4.14
Climb utility poles	0	0	0	0	0	100.0	6.00
Communicate with customers	7.7	15.4	23.1	15.4	0	38.5	4.00
* Follow instructions from engineer	42.9	35.7	14.3	0	0	7.1	2.00

Construction:

	(1)	(2)	(3)	(4)	(5)	(6)	
	Extremely Important	Very Important	Somewhat Important	Somewhat Unimportant	Very Unimportant	Extremely Unimportant	Mean
Read and follow schematic diagrams	66.7%	25.0%	0	0	8.3%	0	1.58
Construct P.C. board from the schematic	8.3	16.7	33.3	16.7	8.3	16.7	3.50
Lay-out the P.C. board	16.7	0	25.0	8.3	25.0	25.0	4.00
Test and evaluate the board	41.7	16.7	25.0	0	8.3	8.3	2.42

Testing:

Devise set-ups to test electronic equipment	23.1	23.1	46.1	7.7	0	0	2.38
Assemble test set-up	8.3	58.3	33.3	0	0	0	2.25
Determine electrical and mechanical performance against set standards	38.5	38.5	23.1	0	0	0	1.85
Interpret test results	38.5	38.5	15.4	0	0	7.7	2.08
Maintain records	30.8	30.8	30.8	0	7.7	0	2.31
Prepare any necessary charts and graphs to communicate information to the engineering personnel	7.7	15.4	46.1	15.4	7.7	7.7	3.23

<u>Electronic Technician</u>	(1)	(2)	(3)	(4)	(5)	(6)	
	<u>Continuously</u>	<u>Regularly</u>	<u>Occasionally</u>	<u>Seldom</u>	<u>Emergency Situation Only</u>	<u>Never</u>	<u>Mean</u>
<u>Assembly and Fabrication Operations</u>							
Wiring:	7.1	28.6	57.1	0	0	7.1	2.79
Soldering	35.7	35.7	7.1	0	14.3	7.1	2.43
Welding	0	0	0	0	16.7	83.3	5.83
Brazing	0	7.7	0	0	15.4	76.9	5.54
Drilling	0	7.1	21.4	14.3	21.4	35.7	4.57
Hole Punching	7.1	7.1	7.1	7.1	28.6	42.9	4.71
Insert components on P.C. board	7.7	38.4	30.8	7.7	7.7	7.7	2.92
Align electronic components	21.4	28.6	21.4	21.4	0	7.1	2.71
Conduct preventative maintenance by periodocally checking and evaluation production and laboratory equipment	7.7	23.1	23.1	30.8	7.7	7.7	3.31
Modify equipment as preengineering directions	0	38.5	53.8	0	0	7.7	2.85
Repair instruments returned by customers	21.4	28.6	28.6	14.3	0	7.1	2.64
Rework circuits	0	21.4	64.3	7.1	0	7.1	3.07
Operate drill press and grinder	7.1	0	14.3	14.3	14.3	50.0	4.79
Climb utility poles	0	0	0	0	0	100.0	6.00
Communicate with customers	7.7	0	7.7	38.5	7.7	38.5	4.54
Follow instructions from engineer	14.3	21.4	35.7	14.3	7.1	7.1	3.00

<u>Electronic Technician</u>	(1)	(2)	(3)	(4)	(5)	(6)	
	<u>Continuously</u>	<u>Regularly</u>	<u>Occasionally</u>	<u>Seldom</u>	<u>Emergency Situation Only</u>	<u>Never</u>	<u>Mean</u>
Read and follow schematic diagrams	66.7	25.0	0	0	0	8.3	1.67
Construct P.C. board from the schematic	8.3	8.3	8.3	41.7	8.3	25.0	4.08
Lay-out the P.C. board	8.3	8.3	0	16.7	25.0	41.7	4.67
Test and evaluate the board	25.0	33.3	8.3	16.7	0	16.7	2.83
<u>Testing:</u>							
Devise set-ups to test electronic equipment	7.7	30.8	38.5	23.1	0	0	2.77
Assemble test set-up	0	50.0	33.3	16.7	0	0	2.67
Determine electrical and mechanical performance against set standards	30.8	30.8	15.4	23.1	0	0	2.31
Interpret test results	30.8	30.8	7.7	23.1	0	7.7	2.31
Maintain records	30.8	46.2	7.7	15.4	0	0	2.08
Prepare any necessary charts and graphs to communicate information to the engineering personnel	0	0	46.2	23.1	23.1	7.7	2.92

ELECTRONIC TECHNICIAN

Importance of Tasks by Mean Rank

<u>Mean Rank</u>	<u>Task Description</u>
	<u>Extremely Important</u>
1.58	Read and follow schematic diagrams (construction)
1.85	Determine electrical and mechanical performance against standards
1.93	Assembly and Fabrication Operations: Soldering
	<u>Very Important:</u>
2.00	Follow instructions from engineer
2.08	Interpret test results
2.14	Repair instruments returned by customers
2.25	Assemble test set-up
2.29	Wiring
2.31	Maintain records
2.36	Align electronic components
2.38	Devise set-ups to test electronic equipment
2.42	Test and evaluate P.C. Board
2.50	Rework circuits
2.54	Modify equipment as per engineering directions
2.77	Conduct preventive maintenance by periodically checking and evaluating production and laboratory equipment
2.85	Insert components on P.C. Board

<u>Mean Rank</u>	<u>Task Description</u>
	<u>Somewhat Important:</u>
3.23	Prepare any necessary charts and graphs to communicate information to the engineering personnel
3.50	Construct P.C. Board from the schematic

ELECTRONIC TECHNICIAN

Frequency of Tasks by Mean Rank

<u>Mean Rank</u>	<u>Task Description</u>
	<u>Continuously:</u>
1.67	Read and follow schematic diagrams
	<u>Regularly:</u>
2.08	Maintain records
2.31	Determine electrical and mechanical performance against set standards
2.43	Soldering
2.64	Repair instruments returned by customers
2.67	Assemble test set-up
2.71	Align electronic components
2.77	Devise set-up to test electronic equipment
2.79	Wiring
2.83	Test and evaluate the P.C. Board
2.85	Modify equipment as per engineering directions
2.92	Insert components on P.C. Board
2.92	Prepare any necessary charts and graphs to communicate information to the engineering personnel

ELECTRONIC TECHNICIAN

Additional Job Tasks:

Electronic technicians listed the following job tasks:

1. Repair P.C. Board
2. Visual recognition of parts by code numbers
3. Communicate with technician specialist
4. Maintain customer relations
5. Perform tasks requiring a knowledge of binary numbers
6. Program material for computer
7. Follow-up and check any work done by an inspection team
8. Preventative maintenance of electronic instruments and related equipment
9. Emergency repair of equipment used by workers in the main production area
10. Maintain continuous calibration of all electronic instruments used in the plant
11. Make decisions regarding location of any problems, hardware, software, environment, or procedures.

Equipment Utilization

The following equipment is used by electronic technicians:

Software:

Production schedules

Equipment manuals

Schematic diagrams

Blue prints and drawings

Engineer's write up

Service bulletins

Hardware:

Electronic test equipment for radio communications

High frequency single side bands

Soldering iron and solder

Pliers

Cutters

Strippers

Oscilloscopes

Frequency counters

Signal generators

AF voltmeters

Digital multimeter

Digital analog thermometers

Hardware Equipment con't.

Various amplifiers

Function generators

Capacitance meters

Various crystal test oscillators

Amateur FM radios

High frequency receivers

Calculators

P.C. Board

Hand tools (for electronic use)

Various chemicals and solvents

D.V.M.

V.O.M.

Junction tester

Miscellaneous screwdrivers

Frequency generator

Special purpose test set

Varick

Ramp generator-oscillator

Automatic data acquisition system

Logic or state analyzers

Tools for removing and replacing integrated CKT chips on boards

Repair or modification forms

Volt/ohm meter

Milli-ohm meter

Hardware Equipment con't

Computers

Custom test stands

Distortion analyzer

Meters (current, voltage, resistance)

Supervisory Responsibilities

The following supervisory duties are exercised:

Teach correct use of test packages

Assist with trouble shooting problems

Supervisor production

Explain power supply to new employees

Check that department is running smoothly

Safety and Emergency Procedures

The following emergency and safety procedures are followed:

Knowledge of high voltage and electrical current

Treatment for electrical shock

Knowledge of tolerance levels of drive storage capacity.

Observations

There is an obvious need for electronic technicians, however, not enough students are entering the courses that are offered. Some educators felt that this was due, in part, to the fact that employers have no minimum educational requirements. There is not enough incentive to go to college when a person can be employed directly from high school. Of those who do start college, many students are "picked up" by companies after one term starting at a salary around \$4 per hour.

ELECTRONIC TECHNICIAN

Recommendation: That the data collected in the study be transmitted to the Division of Engineering Technology and used by that division to evaluate the adequacy and appropriateness of the components of the existing Electronic Technology Associate in Science Degree Program as part of the program review process.

Objectives:

- To fulfill a training need, as expressed by Broward County employers and validated by the employees.
- To update current information concerning the range of tasks performed by drafters.
- To investigate recent changes in the electronic technician field and ascertain any educational impacts.
- To gather any available information regarding future trends in the industry in Broward county.

Target Group:

- Persons with high school diplomas or the equivalent who wish to pursue a career for job entry into the technical field.
- Persons working as electro-mechanical assemblers who wish to upgrade themselves.

<u>Target Group:</u> <u>(cont.)</u>	-Persons employed in electronics who wish to pursue the Bachelor of Science in Technology Degree at upper-division universities.
<u>Assumptions:</u>	-Persons trained locally in conjunction with employers will remain in the local area for employment subsequent to completion of the program. -Industry has, or will, review and adjust its salary levels to be competitive with those found in the northern states.
<u>Recommended Topics:</u>	It is recommended that the task analysis results be used to evaluate the existing curriculum content of the courses currently comprising the electrical engineering and electronic technology programs.
<u>Dissemination of Results:</u>	Results should be disseminated to the following specific groups: - Broward Industrial Board - South Florida Manufacturers Association - South Florida Coordinating Council - State of Florida Industries Task Force - School Board of Broward County

HEAD NURSE RESULTS SUMMARY

Primary Objective of the Position

A head nurse is a registered nurse who is placed in charge of a unit or floor, depending on the organizational structure of the hospital. The position of head nurse is found in private and public hospitals of which there are 18 in Broward County as defined by the American Medical Association (FSES, 1979).

The head nurse is responsible to both staff and patients for:

1. Planning, organizing, directing, evaluating
and educating the nursing staff.
2. Assuring quality patient care on a 24-hour basis.

Supervisory Responsibilities

Since the position of head nurse is primarily supervisory, a detailed description of the answer to this question will be given in the section regarding the job description.

Minimum Education

An associate of science (A.S.) degree or nursing diploma (as defined in "Other") are the minimum education requirements.

Entry Tests

Since the position of head nurse is usually filled from within the hospital, testing is not normally required. Only 23 percent of the sample interviewed administered any tests. Following are some examples of tests given by different hospitals:

1. Nursing questionnaire (varied format)
2. Medical Administration Test
3. Pharmaocology Exam
4. Critical Care Assessment Test

Language Requirements

There are no foreign language requirements.

Safety or Emergency Procedures

Head nurses (employees) perceived that there were safety or emergency procedures which had to be learned prior to employment to a significantly greater degree (33.3% more) than did their supervisors. The majority of the supervisors (55.6%) said that knowledge of the procedures was not necessary prior to employment. The reason for that is due to the fact that each hospital has its own policies and procedures.

Presently the head nurse becomes familiar with assigned responsibilities through on-the-job training (O.J.T.). Following are some examples of safety and emergency procedures mentioned by different hospitals:

- a) Movement of patients
- b) Coping with uncontrolled psychological behavior
- c) Cardiac arrest procedures
- d) Emergency nursing care
- e) Disaster plan
- f) Action in the event of fire
- g) Bomb threat plan
- h) 'Blue Alert'
- i) 'Rainbow Alert'

Hours Worked

Head nurses work an average of 40 hours per week.

Entry Salary

The average entry salary ranges between \$205 and \$286 with an average of \$251 per week.

Maximum Salary

The maximum salary ranges from \$296 to \$396 with an average weekly salary of \$350.

Basis of Salary Determination

Salary is determined by: (1) education, (2) merit, and (3) experience.

Salary increases on the job.

Basis for Promotion

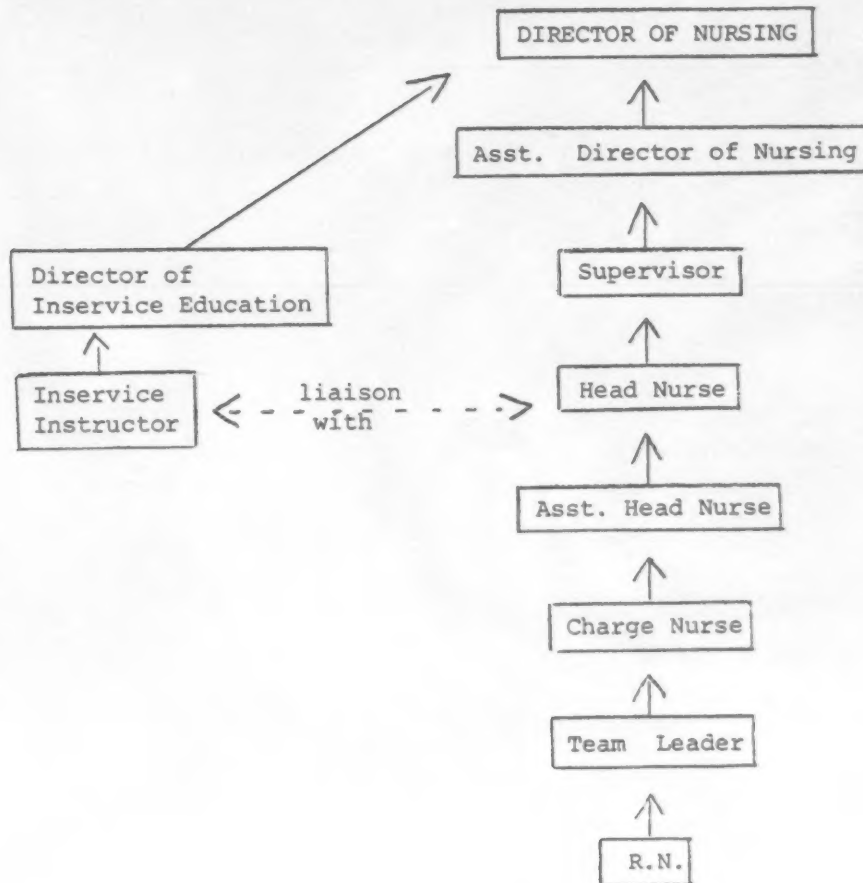
Both head nurses (employees) and their supervisors reported that performance evaluation was the primary basis for promotion. The second most common response, however, differed with supervisors rating "merit" as most important and the employees rating "further schooling":

Question: On what basis is a person promoted?

<u>Basis for Promotion</u>	<u>Supervisor's Affirmative ("Yes") Response</u>	<u>Employee's Affirmative ("Yes") Response</u>
Promotion on merit	77.8%	33.3%
Seniority	0	22.2
Additional on-the-job training	0	33.3
Further outside education	5.6	38.9
Performance evaluation	88.9	44.4
Testing	0	5.6
Experience	44.4	38.9
Commission	0	5.6
Other	50.0	0

The head nurse can be promoted, in order, to the position of nursing supervisor; assistant director of nursing; director of nursing.

Following is a generalized outline of a hospital hierarchy indicating the line of promotion:



General Skills

Respondents reported that: (1) verbal and personal relations and (2) supervision skills were extremely important for head nurses as demonstrated in the following chart.

Head Nurse Management

Response	Manual		Mathematical		Reading		Interpretation	
	Supervisor	Employee	Supervisor	Employee	Supervisor	Employee	Supervisor	Employee
Extremely Important	0	5.6%	0	11.1%	5.6%	22.2%	38.9%	22.2%
Very Important	16.7%	5.6	11.1%	5.6	16.7	16.7	5.6	16.7
Important	27.8	11.1	33.3	16.7	16.7	0	5.6	0
Unimportant	0	11.1	5.6	0	11.1	0	0	0
Very Unimportant	5.6	0	0	0	0	0	0	0
Extremely Unimportant	0	5.6	0	0	0	0	0	0
No Response	50.0	61.1	50.0	66.7	50.0	61.1	50.0	61.1

- 154 -

190

Skills

Response	Verbal		Written		Personal Relations		Supervision	
	Supervisor	Employee	Supervisor	Employee	Supervisor	Employee	Supervisor	Employee
Extremely Important	50.0%	33.3%	38.9%	22.2%	50.0%	33.3%	44.4%	33.3%
Very Important	0	0	11.1	5.6	0	0	0	5.6
Important	0	0	0	5.6	0	0	5.6	0
Unimportant	0	0	0	5.6	0	0	0	0
Very Unimportant	0	5.6	0	0	0	0	0	0
Extremely Unimportant	0	0	0	0	0	0	0	0
No Response	50.0	61.1	50.0	61.1	50.0	66.7	50.0	61.6

- 155 -

Training Location

Most respondents preferred training for head nurses to occur on-site.

Interaction

Supervisors perceive that the head nurse interacts with other individuals to a significantly higher degree than do the head nurses themselves as demonstrated below:

<u>Interaction</u>	<u>Supervisor's Affirmative ("Yes") Response</u>	<u>Employee's Affirmative ("Yes") Response</u>
No One	0	0
Fellow Employees	94.4%	55.6%
Supervisors	94.4	44.4
Customers (patients)	94.4	33.3
General Public	94.4	44.4
Governemnt Officials	50.0	22.2
Other	44.4	27.8

Forecast

Following is an indication of the number of head nurse positions available in Broward County in 1979:

<u>Hospital</u>	<u>Number of Beds</u>	<u>Number of Head Nurse Positions</u>
Bennett Community	204	6
Broward General	626	25
Community Hospital of South Broward	282	20
Cypress Community	150	7
Doctors Hospital	147	10
Florida Medical Center	400	14
Hollywood Medical Center	334	21
Hollywood Memorial	725	24
Holy Cross	597	18
Imperial Point	155	8
Margate General	150	4
North Beach Medical Center	153	9
North Ridge General	396	6
Pembroke Pines General	301	6
Plantation General	264	11
Univeristy Community	<u>209</u>	<u>8</u>
Total	5093	197

Candidates for a Head Nurse Management Program within a hospital would be the head nurses, assistant head nurses, charge nurses, especially from the 3:00 - 11:00 and 11:00 - 7 00 (night) shifts, and nurses aspiring to become head nurses. Persons with "head nurse skills" are also employed by home health agencies and the Broward County Health Department. Candidates for head nurse must be licensed registered nurses (R.N.'s) having completed two years of college. In Broward County it is estimated that 3,400 R.N.'s are employed in 1979. The projected need is 290 additional R.N.'s with 140 due to expansion and 150 for replacement purposes (SFES, 1979).

Observations

Listed below are some of the observations made concerning the position of head nurse:

1. It seems apparent that the shortage of R.N.'s in South Florida has had a direct affect on the availability of potential head nurses. In Broward County, B.C.C. is the only two year training institution, and restrictions on the numbers of students admitted to the program prohibit the number of graduates from increasing.
2. The two-year program is not designed to provide training in the areas of administration and/or supervision needed by the head nurse. Presently additional training is

2. available through in-service departments of hospitals.

A nurse, who wishes to advance academically and obtain a degree, is obliged to go further north or pay high tuition fees at a private college. There is no public college in South Florida offering a four-year nursing degree.

3. The opinion was expressed by respondents that most head nurses in Broward County come from other parts of the country.

4. The opinion was expressed by respondents that less than 50 percent of all nurses in Broward County are graduates of B.C.C. There appears to be some uncertainty among medical administrators as to what happens to nursing students upon graduation from B.C.C. Follow-up studies conducted by B.C.C. indicate the following:

(Note: The figures are not confined to Broward County)

<u>Year</u>	<u>Total Number of Graduates (R.N.'s)</u>	<u>Number Entering Workforce</u>	<u>Percentage in Workforce</u>
1976-77	86	62	72%
1977-78	117	68	58%
1978-79	155	Not available	Not available

Head Nurse Management

Task Description	(1) Extremely Important	(2) Very Important	(3) Somewhat Important	(4) Somewhat Unimportant	(5) Very Unimportant	(6) Extremely Unimportant	Mean
Make daily patient rounds	63.6	18.2	9.1	0	0	9.1	1.82
Assist in direct patient care	18.2	18.2	45.5	0	9.1	9.1	2.91
Evaluate patient care	72.7	27.3	0	0	0	0	1.27
Assist in emergency situations	63.6	18.2	9.1	0	0	9.1	1.82
Provide mental, moral and spiritual care for the patients	54.5	18.2	27.3	0	0	0	1.73
Motivate staff	90.9	9.1	0	0	0	0	1.09
Counsel employees	63.6	36.4	0	0	0	0	1.36
Act as a resource to the nursing staff	63.6	27.3	9.1	0	0	0	1.45
Seek out and accept suggestions from the staff	45.5	54.5	0	0	0	0	1.55
Hold conferences with the staff	27.3	63.6	9.1	0	0	0	1.82
Encourage staff to participate in on-going education programs	45.5	45.5	9.1	0	0	0	1.64

Head Nurse Management cont'd.

	(1)	(2)	(3)	(4)	(5)	(6)	
	Extremely Important	Very Important	Somewhat Important	Somewhat Unimportant	Very Unimportant	Extremely Unimportant	Mean
Identify employee needs for continuing education	18.2	72.7	9.1	0	0	0	1.91
Develop new educational programs	9.1	54.5	18.2	9.1	0	0	2.09
Instruct staff on location and usage of emergency equipment	45.5	45.5	0	0	0	9.1	1.91
Check equipment	45.5	27.3	9.1	9.1	0	9.1	2.18
Supervise regular maintenance of equipment	27.3	36.4	27.3	0	0	9.1	2.36
Recommend, review and justify the acquisition of new equipment	36.4	36.4	9.1	9.1	0	9.1	2.27
Order supplies and equipment	27.3	36.4	27.3	0	0	9.1	2.36
Coordinate nursing services with other services in the hospital	72.7	27.3	0	0	0	0	1.27
Coordinate with the medical staff	81.9	18.2	0	0	0	0	1.18
Coordinate with community agencies	27.3	36.4	27.3	9.1	0	0	2.18
Cooperate with the school of nursing in meeting the needs of student education	22.2	44.4	11.1	0	22.2	0	2.56
Design and implement a staffing schedule for the unit	81.8	9.1	0	0	0	9.1	1.55

- 161 -

Head Nurse Management cont'd.

	(1)	(2)	(3)	(4)	(5)	(6)	
	Extremely Important	Very Important	Somewhat Important	Somewhat Unimportant	Very Unimportant	Extremely Unimportant	Mean
Assist in establishing and maintaining a budget	20.0	40.0	20.0	0	0	20.0	2.80
Assign duties and responsibilities with the unit	54.5	36.4	9.1	0	0	0	1.55
Be responsible for time cards	20.0	40.0	0	10.0	0	30.0	3.20
Complete all necessary daily reports	27.3	45.5	18.2	9.1	0	0	2.09
Be responsible for any necessary disciplinary action	63.6	36.4	0	0	0	0	1.36
Terminate employees when necessary	20.0	30.0	30.0	0	0	20.0	2.90
Interpret hospital policies	45.5	54.5	0	0	0	0	1.55
Support and implement hospital policies	54.5	45.5	0	0	0	0	1.45
Schedule own hours - work different shifts when needed	50.0	30.0	20.0	0	0	0	1.70
Investigate all incidents involving patients, visitors and employees	72.7	18.2	9.1	0	0	0	1.36
Serve on committees	18.2	18.2	54.5	9.1	0	0	2.55
Attend meetings called by the Nursing Director	63.6	27.3	9.1	0	0	0	1.45

Head Nurse Management cont'd.

	(1)	(2)	(3)	(4)	(5)	(6)	
	Extremely Important	Very Important	Somewhat Important	Somewhat Unimportant	Very Unimportant	Extremely Unimportant	Mean
Refer situations beyond control to supervisor	63.6	27.3	9.1	0	0	0	1.36
Orient non-professional personnel	36.4	9.1	45.5	9.1	0	0	2.27
Train non-professional personnel	27.3	18.2	36.4	9.1	0	9.1	2.64
Supervise non-professional personnel	54.5	27.3	18.2	0	0	0	1.64
Evaluate non-professional personnel	54.5	27.3	18.2	0	0	0	1.64
Attend workshops and classes	18.2	63.6	18.2	0	0	0	2.00
Participate in professional organizations	36.4	18.2	27.3	18.2	0	0	2.27
Puruse independent study	36.4	36.4	27.3	0	0	0	1.91

	(1)	(2)	(3)	(4)	(5)	(6)	
<u>Head Nurse Management</u>	<u>Continuously</u>	<u>Regularly</u>	<u>Occasionally</u>	<u>Seldom</u>	<u>Emergency Situation Only</u>	<u>Never</u>	<u>Mean</u>
<u>Task Description</u>							
Make daily patient rounds	18.2	63.6	0	9.1	0	9.1	2.36
Assist in direct patient care	9.1	27.3	36.4	9.1	9.1	9.1	3.09
Evaluate patient care	81.8	18.2	0	0	0	0	1.18
Assist in emergency situations	27.3	18.2	27.3	9.1	9.1	9.1	2.82
Provide mental, moral and spiritual care for the patients	36.4	18.2	45.5	0	0	0	2.09
Motivate staff	63.6	36.4	0	0	0	0	1.36
Counsel employees	54.5	18.2	27.3	0	0	0	1.73
Act as a resource to the nursing staff	63.6	18.2	18.2	0	0	0	1.55
Seek out and accept suggestions from the staff	27.3	72.7	0	0	0	0	1.73
Hold conferences with the staff	0	90.9	9.1	0	0	0	2.09
Encourage staff to participate in on-going education programs	45.5	45.5	0	9.1	0	0	1.73
Identify employee needs for continuing education	9.1	63.6	27.3	0	0	0	2.18
Develop new educational programs	0	27.3	36.4	2.73	0	9.1	3.27
Instruct staff on location and usage of emergency equipment	27.3	54.5	9.1	0	0	9.1	2.18
Check equipment	18.2	45.5	18.2	9.1	0	9.1	2.55
Supervise regular maintenance of equipment	9.1	54.5	18.2	9.1	0	9.1	2.64

	(1)	(2)	(3)	(4)	(5)	(6)	
Head Nurse Management cont'd	Continuously	Regularly	Occasionally	Seldom	Emergency Situation Only	Never	Mean
Recommend, review and justify the acquisition of new equipment	9.1%	45.5%	18.2%	18.2%	0	9.1%	2.82
Order supplies and equipment	27.3	45.5	18.2	0	0	9.1	2.27
Coordinate nursing services with other services in the hospital	63.6	36.4	0	0	0	0	1.36
Coordinate with the medical staff	72.7	18.2	9.1	0	0	0	1.36
Coordinate with community agencies	18.2	45.5	36.4	0	0	0	2.18
Cooperate with the school of nursing in meeting the needs of student education	0	33.3	33.3	11.1	0	22.2	3.44
Design and implement a staffing schedule for the unit	54.5	27.3	0	9.1	0	9.1	2.00
Assist in establishing and maintaining a budget	10.0	40.0	30.0	0	0	20.0	3.00
Assign duties and responsibilities with the unit	72.7	18.2	9.1	0	0	0	1.36
Be responsible for time cards	20.0	20.0	10.0	10.0	0	40.0	3.70
Complete all necessary daily reports	36.4	45.5	18.2	0	0	0	1.82
Be responsible for any necessary disciplinary action	63.6	36.4	0	0	0	0	1.36
Terminate employees when necessary	20.0	0	30.0	30.0	0	20.0	3.50
Interpret hospital policies	54.5	27.3	18.2	0	0	0	1.64
Support and implement hospital policies	81.8	9.1	9.1	0	0	0	1.27

	(1)	(2)	(3)	(4)	(5)	(6)	
<u>Head Nurse Management cont'd</u>	<u>Continuously</u>	<u>Regularly</u>	<u>Occasionally</u>	<u>Seldom</u>	<u>Emergency Situation Only</u>	<u>Never</u>	<u>Mean</u>
Schedule own hours - work different shifts when needed	30.0%	30.0%	30.0%	10.0%	0	0	2.20
Investigate all incidents involving patients, visitors and employees	54.5	18.2	18.2	9.1	0	0	1.82
Serve on committees	9.1	36.4	54.5	0	0	0	2.45
Attend meetings called by the Nursing Director	36.4	54.5	9.1	0	0	0	1.73
Refer situations beyond control to supervisor	54.5	18.2	27.3	0	0	0	1.73
Orient non-professional personnel	18.2	18.2	54.5	9.1	0	0	2.55
Train non-professional personnel	18.2	9.1	54.5	9.1	0	9.1%	2.91
Supervise non-professional personnel	45.5	27.3	27.3	0	0	0	1.82
Evaluate non-professional personnel	45.5	27.3	27.3	0	0	0	1.82
Attend workshops and classes	9.1	45.5	45.5	0	0	0	2.36
Participate in professional organizations	9.1	27.3	27.3	18.2	0	18.2	3.27
Pursue independent study	36.4	9.1	54.5	0	0	0	2.18

HEAD NURSE

Importance of Tasks by Mean Ranks

<u>Mean Rank</u>	<u>Task Description</u>
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Extremely Important:

1.09	Motivate staff
1.18	Coordinate communications with the medical staff
1.27	Evaluate patient care
	Co-ordinate nursing services with other services in the hospital
1.36	Investigate any incidents involving patients, visitors, and employees
	Refer situations beyond control to supervisor
	Counsel employees
	Be responsible for any necessary disciplinary action
1.45	Act as a resource to the nursing staff
	Attend meetings called by Nursing Director
	Support and implement hospital policies
1.55	Design and implement a staffing schedule for the unit
	Assign duties and responsibilities within the unit
	Seek out and accept suggestions from the staff
	Interpret hospital policies
1.64	Supervise non-professional personnel
	Evaluate non-professional personnel
	Encourage staff to participate in on-going education programs

Mean Rank Task Description

Extremely Important:

- | | |
|------|---|
| 1.70 | Schedule own hours -- work different shifts when needed |
| 1.73 | Provide mental, moral and spiritual care for the patients |
| 1.82 | Make daily patient rounds |
| | Assist in emergency situations |
| | Hold conferences with the staff |
| 1.91 | Instruct staff on location and usage of emergency equipment |
| | Pursue independent study |
| | Identify employee needs for continuing education |

Very Important:

- | | |
|------|--|
| 2.00 | Attend workshops and classes |
| 2.09 | Complete all necessary daily reports |
| | Develop new educational programs |
| 2.18 | Check equipment |
| | Coordinate with community agencies |
| 2.27 | Recommend, review, and justify the acquisition of new equipment |
| | Participate in professional organizations |
| | Orient non-professional personnel |
| 2.36 | Supervise regular maintenance of equipment |
| | Order supplies and equipment |
| 2.55 | Serve on committees |
| 2.56 | Cooperate with the school of nursing in meeting the needs of student education |

<u>Mean Rank</u>	<u>Task Description</u>
------------------	-------------------------

	<u>Very Important</u>
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2.64	Train non-professional personnel
2.80	Assist in establishing and maintaining a budget
2.90	Terminate employees when necessary
2.91	Assist in direct patient care

HEAD NURSE

Frequency of Tasks by Mean Ranks

<u>Mean Rank</u>	<u>Task Description</u>
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Continuously:

1.18	Evaluate patient care
1.27	Support and implement hospital policies
1.36	Coordinate with the medical staff
	Assign duties and responsibilities with the unit
	Coordinate nursing services with other services in the hospital
	Be responsible for any necessary disciplinary action
1.55	Act as a resource to the nursing staff
1.64	Interpret hospital policies
1.73	Counsel employees
	Refer situations beyond control to supervisor
	Encourage staff to participate in on-going education programs
	Attend meetings called by Nursing Director
	Seek out and accept suggestions from the staff
1.82	Investigate all incidents involving patients, visitors, and employees
	Supervise non-professional personnel
	Evaluate non-professional personnel
	Complete all necessary daily reports

Regularly:

2.00	Design and implement a staffing schedule for the unit
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<u>Mean Rank</u>	<u>Task Description</u>
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	<u>Regularly:</u>
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2.09	Assist in emergency situations
	Hold conferences with the staff
2.18	Pursue independent study
	Instruct staff on location and usage of emergency equipment
	Coordinate with community agencies
	Identify employee needs for continuing education
2.20	Schedule own hours -- work different shifts when needed
2.27	Order supplies and equipment
2.36	Make daily patient rounds
	Attend workshops and classes
2.45	Serve on committees
2.55	Check equipment
	Orient non-professional personnel
2.64	Supervise regular maintenance of equipment
2.82	Recommend, review, and justify the acquisition of new equipment
2.91	Train non-professional personnel

Head Nurse

Additional Job Tasks

The following tasks were listed by respondents as important in addition to those expressed in the task analysis:

- Maintain open lines of communication with management
- Coordinate with doctors and their orders
- Pick up orders left by the doctors
- Hand in daily reports to the nursing office
- Be responsible for medical and surgical supplies used in assigned areas
- Be responsible for the management of charge personnel assigned to shifts when the head nurse is off duty
- Be available to listen to employees
- Make out assignment for staff
- Maintain weekly payroll sheets
- Evaluate each employee on each shift

The following additional tasks were mentioned by home health agency personnel:

- Supervision of agency personnel
- Create policies for the agency
- Send correspondence to the public
- Liaison with government agencies
- Assist with budget planning
- Hiring and firing of staff

In addition to the above, head nurses, who were interviewed, made the following observations:

1. In the majority of hospitals, the development of new educational programs is the responsibility of the in-service department. However, the head nurse can make suggestions to the inservice coordinator. (The job description stated that head nurses were responsible for developing new courses.)
2. Termination of staff is usually the responsibility of the Director or Assistant Director of Nursing. The head nurse, however, can make any suggestions necessary. In a few cases, the head nurse did actually have the power to terminate subordinates.

Equipment Utilization

The head nurse must have knowledge of utilization of the following equipment:

- Patient care equipment
- Nursing service manuals
- Medical supplies
- Patients' charts
- Reference books
- Manager's manual

Safety and Emergency Procedures

The following safety and emergency procedures must be learned by the head nurse:

1. Emergency nursing care
2. Recognition of O.S.H.A. regulations
3. Knowledge of codes and appropriate action:

Code Red = Fire

Code Blue = Cardiac arrest

Code Rainbow = Psychological imbalance

HEAD NURSE

Recommendation: -Supplementary courses for head nurse management should be implemented as part of continuing education available to nurses at B.C.C.

-An advisory board, consisting of nursing administrators, should be established to work in co-operation with the relevant campus nursing department personnel so that the program could be developed and evaluated on a regular basis.

Objectives in Implementing the Recommendations: -To fulfill a training need as expressed by the employers of head nurses in Broward County

-To encourage standard, quality occupation education for head nurses.

Target Group: -Candidates for the program would include the following: head nurses; assistant head nurses; charge nurses allocated to an evening shift; any nurse who has been allocated supervisory responsibilities; any nurse aspiring to become a head nurse at some later date.

Assumptions:

It is assumed that candidates for the course would have satisfied the following requirements:

1. Expertise in the specified clinical area.
2. Expertise in the implementation of the following tasks:
 - a) Initiation of intravenous solutions
 - b) Initiation of blood transfusions using saline as the primary infusor
 - c) Initiation of intravenous solutions using medicut or angiocath
 - d) Administration of I.V. push medications
 - e) Administration of Heparin via Heparin lock
 - f) Suction endotracheally with or without an endotracheal lock
 - g) Insertion of levine tubes
 - h) Addition of medications to intravenous solutions for intravenous therapy
 - i) Defibrillation of patients
3. If not already known the following skills should be acquired:
 - a) Chemotherapeutics
 - b) Hyperalimentation
 - c) Major dressing changes
 - d) Chest tubes
4. Minimum experience of 2 years as a general duty staff nurse.
5. Mental and Physical capability.
6. Capable of emotional control in highly stressful situations.
7. Must have passed any necessary pre-employment physical examination.

Recommended Course Topics

From the information collected the following topics are recommended for inclusion in Head Nurse Management education courses:

- Management Skills:
1. Assertiveness Training
 2. Counseling techniques
 3. Coping with stress
 4. Instructional techniques
 5. Public speaking
 6. Staff motivation

Staff:

1. Staffing schedule -
 - a) assigning duties
 - b) designing a schedule
 - c) implementing the schedule
 - d) personal time scheduling
2. Staff orientation
3. Incident investigation involving staff
4. Staff evaluation -
 - a) assessing staff performance
 - b) personal time scheduling

Administration:

1. Legal aspects of health care
2. Understanding, interpreting, and implementing hospital policy
3. Writing and reporting skills for daily reports

Administration:
(cont.)

4. Budget: a) preparation
b) maintenance
5. Equipment: a) assessing needs
b) inventory taking
c) maintenance
d) ordering
6. Patient records - preparation and maintenance
7. Inventory taking for:
 - a) equipment
 - b) medications
 - c) solutions
 - d) supplies
8. Coordination with the school of nursing:
 - a) assessing the needs for new programs
 - b) making recommendations to the school of nursing
9. Coordination with other hospital agencies
10. Coordination with various community agencies
11. Participation in committees
12. Participation in professional organizations

Patient:

1. Direct patient care
2. Patient counseling
3. Emergency situations
4. Medical responsibilities

Correlations Between Supervisor and Employee Responses

The Pearson product-moment correlation coefficient (r) was utilized to determine if there were significant correlations between what supervisors said and what employees said. Within each occupational area, the following significant correlations existed between the responses of the supervisors and the responses of the employees: (see Appendix I).

Computer Programmer

Positive correlation of importance of interpretation skills

Head Nurse

Positive correlation of the extent of employee interaction with customers. (patients) and general public and of the importance of personal relation skills and supervision skills.

Drafting

Negative correlation in terms of extent of interaction with fellow employees and whether employee has supervisory responsibilities

Positive correlation of the extent of interaction with customers and the basis for promotion: performance evaluation.

Electronic Technician

Negative correlation of extent of interaction with fellow employees.

Positive correlation of extent of interaction with customers and importance of personal relation skills

Construction Secretary

Positive correlation of the extent of employee interaction with customers and importance of reading skills.

Insurance Secretary

Positive correlation of the importance of verbal, personal relations, and supervision skills.

PROJECT CONCLUSIONS, RECOMMENDATIONS AND IMPACT

Data obtained in the study enabled the director to make the following conclusions:

1. The occupational areas which were defined by employers as most in need of additional occupational education were the following:

Auto Mechanic	Licensed Practical Nurse (LPN)
Auto Sales	Loan Processing Clerk
Bookkeeper	Management/Supervisor
Business Data Processing	Medical Lab Technician
Carpenter	Metal Working Machinist
Chef	Registered Nurse (RN)
Electrical Engineer	Retail Sales
Electro-Mechanical Assembler	Savings Counselor
Electronic Technician	Secretary-Banks, Health,
Engineering Drafting	Trucking, Auto Dealers
Heavy Equipment Operator	Insurance Construction
Home Health Aide	Short-Order Cook
Insurance Agent/Broker	Teller

Those which were identified as appropriate to post-secondary level education were investigated in the project:

- a) Computer programmer in business data processing
- b) Head nurse
- c) Drafting
- d) Electronic technician
- e) Construction secretary
- f) Insurance secretary

2. Job entry level competencies were identified for each occupational area in terms of importance and frequency as reported by supervisors and validated by employees functioning in the position being investigated. They were rank-ordered and appear in the results section of this study.
3. Curriculum development in the form of degree programs, workshops, or supplemental programs and/or curriculum evaluation were recommended for each occupational area. The specific recommendations for each area were included in Chapter III.

Based upon the results and conclusions of the study, the following recommendations were made:

1. That the Director of Institutional Research and Systems Planning disseminate the results to the BCC President's Cabinet members and academic deans and establish the model for curriculum development and evaluation;
2. That the academic deans determine the most appropriate way to disseminate the data to the respective departments and establish responsibility within each for the utilization and implementation of the results; and
3. That the Director disseminate appropriate findings to the Public School Board, Broward Industrial Board, Chamber of Commerce, Urban League, and employers and take any appropriate action to establish active liaison with community groups concerning implementation of findings.

IMPACT

Results of the study have identified major areas of concern in six specified occupational areas, however, the greatest impact of the study is the result of pilot-testing a system for both developing and evaluating curricula. The model, which can be derived from the study, brings emphasis to the needs of employers and couples them with the available instructional expertise to fulfill those needs. Supervisors and personnel directors can be used to identify skill requirements necessary for obtaining the employment, while employees in the actual position are used to validate the skills necessary to perform satisfactorily on the job.

The study has again verified the need to communicate with employers concerning their needs as consumers of the educational product: the graduate. The educational system can no longer afford to develop curricula without the active participation of employers -- beyond the inputs normally found with advisory committees. Only as the director of the study (Broward Community College's Director of Institutional Research and Systems Planning) continues to work with the College personnel, BIB, Chamber of Commerce, Urban League, Public School Board and other interested parties toward implementation of a curriculum development model will the true potential impact of this study be realized.

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APPENDICES

- Appendix A Occupational Priority Areas Questionnaire
- Appendix B Letters of Request
- Appendix C Employer's Questionnaire Part A (Supervisor)
- Appendix D Task Analysis Questionnaire Part B (Supervisor)
- Appendix E Employee Validation Questionnaire Part C (Employee)
- Appendix F Drafting Skill Checklist
- Appendix G Advisory Board Members and Up-date Letter
- Appendix H Letter of Appreciation

APPENDIX A

Occupational Priority
Areas Questionnaire

Curriculum Design for New Occupational Training

Broward Community College, with the assistance of BETA and many other cooperating educational agencies in Broward County, would like to work with the business community to design and implement training programs to meet the needs of the County's major employers. In order to determine the highest need priorities in the occupational category of Manufacturing, we need the employers' input once again. Please help us by answering the following questions.

- 1) Listed below are the job titles which manufacturing employers predict will be the highest demand occupations in the next 2-5 years. Please rank these titles in order of highest priority, number 1 being the most needed position, number 2, next highest, etc.

_____	Electro-mechanical Assemblers
_____	Engineers
_____	Machinists
_____	Electronic Technicians
_____	Computer Personnel
_____	Tool & Die Makers
_____	Foremen/Supervisors
_____	Software Design
_____	Production Workers
_____	Managers

- 2) Are there any job titles not included in item number 1 which you feel will be in great demand in Broward County in the next 2-5 years? If so, please list the names of the positions.

- 3) We would like to have representatives from the business community assist us in designing training programs to fulfill the needs of Broward County. If you would like to be a member of our Educational Advisory Panel, please list your name and your company's name, address and phone number below so that we may contact you later.

Thank you very much for your cooperation. If you have any questions, please feel free to call me at: 467-6700, extension 232.

Mantha Vlahos Mehallis, Ph. D.
Director of Institutional Research
and Systems Planning

Please return no later than Nov. 27, 1978

APPENDIX B

Letters of Request

236



broward community college

administrative offices
225 east las olas boulevard
fort lauderdale, florida 33301

December 29, 1978

Dear

The Broward Community College team currently researching "Curriculum Development for New Occupational Training" wishes to thank you for volunteering as a member of our advisory panel. At this stage of our project, your contribution will be most influential in the role of a field advisor. We plan to implement a task analysis designed to give a complete description of the positions being studied. To ensure the validity of our research, we first plan to pilot test the analysis instrument.

We would appreciate utilizing about half-an-hour of your time to conduct this pilot test in the form of a personal interview. A member of our research team will call you to check on your availability, and if agreeable, will arrange an appointment at your convenience.

If you have any questions regarding this project, please don't hesitate to call Kerry Fair at 467-6700, ext. 235. Thank you for your interest and cooperation.

Mantha Vlahos Mehallis

Dr. Mantha Vlahos Mehallis, Ph. D.
Director of Institutional Research
and Systems Planning

Kerry L. Fair

Kerry Fair
Project Coordinator



broward community college

administrative offices
225 east las olas boulevard
fort lauderdale, florida 33301

To Whom It May Concern:

Broward Community College's Office of Institutional Research is presently conducting a research project entitled "Curriculum Design for New Occupational Training." The goal of this project is to design and implement new training programs to better meet the needs of Broward County employers.

We have determined the highest demand occupations projected for the next five years and are now gathering information to compile specific job descriptions in order to develop curricula for the selected areas. Supervisors throughout the county will be contacted to assist us in identifying specific tasks and competency levels necessary to fulfill job entry requirements. Each supervisor will be consulted regarding one position only.

We would appreciate your contribution to the project in allowing a member of the research team to interview you regarding a pre-selected position in your company. The interviewer will contact you to arrange an appointment for a personal interview and to specify the position in question. We will need no more than half an hour of your time. If you have any questions, please do not hesitate to call Kerry Fair, project coordinator, at 467-6700, ext. 235.

Thank you for your cooperation.

Sincerely,

Mantha Vlahos Mehallis

Mantha Vlahos Mehallis, Ph. D.
Director of Institutional Research
and Systems Planning

MVM/mjc



broward community college

administrative offices
225 east las olas boulevard
fort lauderdale, florida 33301

January 2, 1979

Dear Broward County Employer:

As an integral part of Broward Community College's research project, "Curriculum Development For New Occupational Training," we are presently establishing an Educational Advisory Panel. You have indicated interest in becoming a member of this panel, and we feel that your professional knowledge will be a valuable contribution in assisting us to design new technical programs.

We thank you for volunteering your services and wish to advise you that the inaugural meeting of the Panel will take place in the fifth floor Board Room of the Fort Lauderdale Center, 225 East Las Olas Boulevard, on January 11, 1979, at 8.00 a.m.

Please acknowledge your ability to attend this meeting by calling Kerry Fair (project coordinator) at 467-6700, ext. 235, by Monday, January 8, 1979.

We look forward to your attendance.

Sincerely,

Mantha Vlahos Mehallis, Ph. D.
Director of Institutional Research
and Systems Planning

Kerry Fair
Project Coordinator

MVM/jg



broward community college

administrative offices
225 east las olas boulevard
fort lauderdale, florida 33301

January 29, 1979

Dear

The Broward Community College team currently researching "Curriculum Development for New Occupational Training" wishes to remind you of our request, of December 29, 1978, to pilot test our task analysis instrument within your company.

We wish to conduct this interview, taking approximately half an hour, with the personnel manager. A member of our team will call within the next few days to arrange an appointment and indicate which position in the company we wish to analyze.

Could you please relay this information to the relevant person and if you have any questions concerning this project please call Kerry Fair (467-6700, ext. 235). Thank you for your cooperation.

Sincerely,

Mantha Vlahos Mehallis

Dr. Mantha Vlahos Mehallis, Ph. D.
Director of Institutional Research
and Systems Planning

Kerry Lyn Fair

Kerry Lyn Fair,
Project Coordinator



broward community college

administrative offices
225 east las olas boulevard
fort lauderdale, florida 33301

Dear

Broward Community College wishes to thank you for your participation in the current research project, "Curriculum Design For New Occupational Training." Information collected via the initial interviews and returned part B's has been most valuable in helping us identify present requirements in the selected occupations.

The next stage of the project is concerned with employee validation of the compiled job description. Supervisors were informed at the interview that this would be conducted in the form of a personal interview; however, as a contribution to gas conservation, this information is being collected by mail.

Could you please ask a member of your staff currently employed in the position:
to fill out the enclosed questionnaire. This should take no more than 20 minutes. Please return completed questionnaire to the college. A business reply-paid envelope has been enclosed. If you have any questions, please call me at 467-6700, ext. 235.

Thank you for your cooperation.

Sincerely,

Kerry Lyn Fair

Kerry-Lyn Fair
Project Coordinator

KLF/jag

Enclosure



broward community college

-199-

administrative offices
225 east las olas boulevard
fort lauderdale, florida 33301

Dear Employee:

As part of a research project being conducted by Broward Community College, we are collecting information about the position you are currently employed in. This information will serve as a basis for curriculum evaluation and/or design.

You can greatly assist our project by filling out the following questionnaire. Please check the back of each sheet for additional questions. A reply-paid envelope has been enclosed for the return of the questionnaire.

If you have any questions, please call me at 467-6700, extension 235.

Thank you for your cooperation.

Sincerely,

Kerry-Lyn Fair
Project Coordinator

KLF/jag

Enclosure



broward community college

administrative offices
225 east las olas boulevard
fort lauderdale, florida 33301

July 13, 1979

To Whom It May Concern:

The research project, "Curriculum Design For New Occupational Training" being conducted by Broward Community College is now in its final stages. We are currently processing all the information that has been collected.

Your contribution to the final report is most valuable. We are, therefore, eager to obtain all unreturned, completed questionnaires. We appreciate the time you have taken to assist the research team and hope that you will continue to help us to obtain the most accurate, complete information in the relevant occupational area. A summary of the results will be sent to all project participants.

Thank you again for your cooperation. Please return all outstanding questionnaires to this office as soon as possible. If you have already returned the material please disregard this letter.

Yours sincerely,

Kerry Lyn Fair,
Project Coordinator

KLF/mjc

APPENDIX C - EMPLOYER'S QUESTIONNAIRE

Part A Supervisor

Broward Community College
Institutional Research

Position: _____

Interviewer: _____

Date: _____

PART A.

Company Title
& Address: _____

Phone No: _____

Name of Personnel
Manager: _____

Name of employee to
be interviewed later: _____

Total # of employees: _____

1. What is the overall objective of the position?

2. What are the present minimal educational requirements for the position?
(Please circle one only)

1. No formal education
2. High School Diploma
3. Technical/Trade School (accredited specialized school)
4. Certificate - 1 year technical program
5. A. S. Degree
6. 4 year college
7. Masters Degree
8. Other (specify) _____

3. Is there a fixed salary for persons entering this position? (please circle)

1. Yes
2. No (if no skip to #5)

4. What is the salary per week?

\$ _____

5. How many working hours per week does the position involve?

6. Can a person's salary increase while working in this position? (please circle)

1. Yes
2. No (if no skip to #8)

7. What is the maximum salary, per week, a person could earn in this position?

\$ _____

8. On what basis is salary decided? (circle as many as apply)

1. Commission
2. Experience
3. Education
4. Salary & Commission
5. Merit
6. Other (specify) _____

9. Is the new employee required to take any special tests? (please circle)

1. Yes
2. No (if no skip to #11)

10. Please name these tests and where applicable, the required achievement level.

11. With which of the following does the employee interact? (circle as many as apply)

1. No one
2. Fellow employees
3. Supervisor
4. Customers
5. General public
6. Government officials
7. Other (specify) _____

12. Can a person be promoted from this position without further training? (please circle)

1. Yes
2. No (if no skip to #14)

13. What are the positions to which a person could be promoted?

- | | |
|----------|----------|
| a. _____ | c. _____ |
| b. _____ | d. _____ |

14. On what basis is a person promoted? (circle as many as apply)

1. Promotion on Merit
2. Seniority
3. Additional on-the-job training
4. Further outside education
5. Performance evaluation
6. Testing
7. Experience
8. Commission
9. Other (specify) _____

15. Does the employee in this position have any supervisory responsibilities? (please circle)

1. Yes
2. No (if no skip to #17)

16. Please specify the supervisory responsibilities:

17. Are there any language requirements for this position? (please circle)

1. Yes
2. No (if no skip to #19)

18. What are they?

19. Are there any special safety or emergency procedures which must be learned prior to employment in this position? (please circle)

1. Yes
2. No (if no skip to #21)

20. What are these procedures?

21. What is the total number of people currently employed in this position? (please circle)

1. 0-5
2. 6-10
3. 11-20
4. 21-50
5. 50 or more

22. Of the total number, how many are females?

23. Of the total number, how many are members of minority groups?

24. Are there any written materials (such as a job description, production report, manual, etc.) that could provide information regarding the requirements of the position? (please circle)

1. Yes
2. No (if no skip to #28)

25. What are these documents?

26. Can these documents be borrowed? (please circle)

1. Yes
2. No (if no skip to #28)

27. How can they be obtained?

28. If the training program were to be initiated what would be the most preferred location? (please circle)

1. BCC North Campus
2. BCC Central Campus
3. BCC South Campus
4. On your site
5. Other (specify) _____

APPENDIX D

Task Analysis Questionnaire

Part B (Supervisor)

Broward Community College
Institutional Research

Office Use Only

Position _____

Interviewer _____

Personnel
Manager _____

Project: Curriculum Design for New
Occupational Training

Part B: Task Analysis

Instructions: Please fill out the following sheets and return to Broward Community College by _____.
A postage paid envelope is attached for your convenience.

Information: All data pertaining to this position is to be used collectively. Names of individuals
and companies will not be used in the compiled report.

SKILLS CHECKLIST

POSITION _____

Instructions: Please rate the importance of the following skills in terms of the ENTRY LEVEL requirements of the position. (Please circle only one on each line)

	Extremely Important	Very Important	Important	Unimportant	Very Unimportant	Extremely Unimportant
1. <u>Manual Skills</u> - using & operating tools, equipment & machinery	1	2	3	4	5	6
2. <u>Mathematical Skills</u>	1	2	3	4	5	6
3. <u>Reading</u> - printed matter, blueprints, tables, diagrams, etc.	1	2	3	4	5	6
4. <u>Interpretation</u> - printed matter	1	2	3	4	5	6
5. <u>Verbal</u> - communication	1	2	3	4	5	6
6. <u>Written</u> - Communication	1	2	3	4	5	6
7. <u>Personal Relation Skills</u> - dealing with people, customers, co-workers	1	2	3	4	5	6
8. <u>Supervision Skills</u> - instruction, directing, evaluating, organizing	1	2	3	4	5	6

FREQUENCY SCALE

How frequently is the duty performed?

1. Continuously
2. Regularly
3. Occasionally
4. Seldom
5. Emergency
6. Never

IMPORTANCE SCALE

How important is the duty in relation to the whole position?

1. Extremely important
2. Very important
3. Somewhat important
4. Somewhat unimportant
5. Very unimportant
6. Extremely unimportant

Position: _____

PLEASE WRITE NUMBER ONLY IN BOX BELOW

Write down the duties and/or responsibilities of this position. Only one per box

Use
Scales
Above

Write down the steps involved in the duty - WHERE APPLICABLE

Write down the efficiency level-
WHERE APPLICABLE

FREQ.

IMP.

FREQ.

IMP.

FREQ.

IMP.

FREQ.

IMP.

APPENDIX E

Employee Validation Questionnaire

Part C (Employee)

256

-210-

-222-



broward community college

administrative offices
225 east las olas boulevard
fort lauderdale, florida 33301

July 16, 1979

Dear Advisory Board Member:

The research project, "Curriculum Development For New Occupational Training", is now in its final stages. The information collected is being processed, preparation of the final report is well under way and the compiled job descriptions are currently being validated by employees in the respective occupations.

Through the duration of the project several areas have been eliminated, as indicated below. Following this is a list of the final areas plus action being taken.

Eliminated Areas

Bookkeeping	-	Auto Sales
Health Management	-	Restaurant Management
Home Health Aide	-	Aviation Mechanics
Sales Management	-	Avionics

Occupation Research Priority Areas

Head Nurse Management	-	Curriculum design
Drafting	-	Curriculum design
Insurance Secretary	-	Workshop design
Construction Secretary	-	Workshop design
Business Data Processing	-	Supplementary information
Electronic Technicians	-	Supplementary information

If the area of your concern has been eliminated, we wish to thank you for your contribution to this project. If you have any questions regarding the eliminated areas, please don't hesitate to call Kerry Fair at 467-6700 ext. 235. A summary of the results will be forwarded to you at the completion of the project.

If your areas of interest is in the final list, we hope you will continue to assist us as needed. There will be a meeting of the Advisory Board near the end of the project to evaluate the findings. Thank you again for your cooperation.

Kerry Fair
Project Coordinator

270

Broward Community College
Institutional Research

Office Use Only

Project: "Curriculum Design for
New Occupational Training"

Interviewer _____

Position _____

Part C. Employee Validation

INFORMATION

All data pertaining to this position will be used collectively.
Names of individuals and companies will not be used in the final
report.

1. What is the overall objective of your position?

2. In your position, which of the following persons do you have contact with?
(please circle as many as apply)
 1. No one
 2. Fellow employees
 3. Supervisors
 4. Customers
 5. General Public
 6. Government officials
 7. Other (specify) _____
3. Do you have any supervisory responsibilities in your position? (please circle)
 1. Yes
 2. No (if no skip to #5)
4. What are these responsibilities?

5. Are there any special safety or emergency procedures which must be learned before starting in your position? (please circle)

1. Yes
2. No (if no skip to #7)

6. What are these procedures?

7. On what basis is a person, in your position, promoted? (please circle as many as apply)

1. Promotion on merit
2. Seniority
3. Additional on the job training
4. Further outside schooling
5. Performance evaluation
6. Testing
7. Experience
8. Commission
9. Other (specify) _____

SKILLS CHECKLIST

POSITION _____

Instructions: Please rate the importance of the following skills in terms of the ENTRY LEVEL requirements of your position. (Please circle only one on each line.)

	Extremely Important	Very Important	Important	Unimportant	Very Unimportant	Extremely Unimportant
1. <u>Manual Skills</u> - using & operating tools, equipment & machinery	1	2	3	4	5	6
2. <u>Mathematical Skills</u> -	1	2	3	4	5	6
3. <u>Reading</u> - printed matter, blueprints, tables, diagrams, etc.	1	2	3	4	5	6
4. <u>Interpretation</u> - printed matter	1	2	3	4	5	6
5. <u>Verbal</u> - communication	1	2	3	4	5	6
6. <u>Written</u> - communication	1	2	3	4	5	6
7. <u>Personal Relation Skills</u> - dealing with people, customers, co-workers	1	2	3	4	5	6
8. <u>Supervision Skills</u> - instructing, directing, evaluating, organizing	1	2	3	4	5	6

260

Equipment and Materials

Please list **all** equipment and/or materials you use in this position:

Please feel free to write any additional comments that you feel might be useful:

Indicate, by number, the frequency and importance of each of the following tasks in relation to your position.

FREQUENCY SCALE

1. Continuously
2. Regularly
3. Occasionally
4. Seldom
5. Emergency Situation Only
6. Never

TASK	IMPORTANCE	FREQUENCY

Please list any tasks you perform that have not been mentioned in the above list.
(Please indicate the importance and frequency after each one.)

	<u>IMPORTANCE</u>	<u>FREQUENCY</u>

APPENDIX F

Drafting Skill Checklist

283

Drafting - Skill Checklist

Position _____

Instructions: Please rate the importance of each of the following skills in terms of ENTRY LEVEL requirements of your position.

1. Extremely Important
2. Very Important
3. Somewhat Important
4. Somewhat Unimportant
5. Very Unimportant
6. Extremely Unimportant

Please write the number from the scale in the blank.

_____	(1) Basic Math	_____	(13) Writing
_____	(2) Algebra	_____	(14) Technical Writing
_____	(3) Advanced Math	_____	(15) Hydraulics
_____	(4) Basic Drafting	_____	(16) Materials
_____	(5) Detailing	_____	(17) Basic Electricity
_____	(6) Tracing	_____	(18) Electronics
_____	(7) Architectural Layout	_____	(19) PC Board Layout
_____	(8) Construction Layout	_____	(20) Micro-Circuit Layout
_____	(9) Airconditioning Layout	_____	(21) Writing Techniques
_____	(10) Statistics	_____	(22) Mechanical Assembly Techniques
_____	(11) Dynamics	_____	(23) Data Processing
_____	(12) Machine Design	_____	(24) Other _____

APPENDIX G

Advisory Board Members

and Up-date Letter

List of Advisory Board Volunteers

Ms. Nancy Albert
(Bookkeeping)
Albert Admin. Associates
10749 Shady Pond Lane
Boca Raton, FL 33433

Ms. Shirley Doyle
Personnel Manager
Sears Department Store
901 N. Federal Hgwy.
Ft. Lauderdale, FL 33304
765-4000

Mr. Ronny Aronson
District Manager
Occidental Life Insurance
3741 N. Federal Highway #604
Ft. Lauderdale, FL
563-5706

Ms. Claudia L. Jack
Director of Personnel
Memorial Hospital
3501 Johnson Street
Hollywood, FL 33021
987-2000 ext. 5471

Mr. Bob Boegli
Asst. Director of Voc. Tech.
and Adult Education
Broward County School Board
1350 S.W. 2nd Court
Ft. Lauderdale, FL 33312

Ms. Marlene Konik
Supervisor
Gold Coast Health Service
4699 N. Federal Highway
Pompano Beach, FL
785-2990

Mr. Morris Chaney
Hollywood Federal Savings & Loan
Data Center
140 S. Federal Highway
Dania, FL 33004
921-8666

Mr. Ed Mass
Asst. Administrator
Pembroke Pines Gen. Hospital
2301 N. University Drive
Pembroke Pines, FL

Mr. Ken Coburn
Assistant Superintendent
Bendix Avionics
2100 N.W. 62nd Street
Ft. Lauderdale, FL 33310
776-4100 ext. 130

Ms. Betty Mott
Supervisor
Medical Personnel Pool
2534 N. Federal Hgwy.
Ft. Lauderdale, FL
742-5583

Ms. Marilyn Dean
Director of Nursing
North Beach Medical Center
2835 North Ocean Blvd.
Ft. Lauderdale, FL

Mr. Rick Read
Area Supervisor
Arthur Treachers
1061 W. Oakland Park Blvd.
Ft. Lauderdale, FL 33311
561-8508

List of Advisory Board Volunteers cont'd.

Mr. Harry Rosenberg
Personnel Manager
Wilson Concepts, Inc.
1408 S.W. 8th Street
Pompano, FL 33060
946-5175

Mr. Ed Salters
Program Manager
Bendix Avionics
2100 S.W. 62nd Street
Ft. Lauderdale, FL 33310

Ms. J. Trenker
Director of Nursing
Broward General Medical Center
1600 S. Andrews Avenue
Ft. Lauderdale, FL 33316

Ms. Berry Valin
Director of Nursing
Florida Medical Center Hospital
5000 W. Oakland Park Blvd.
Ft. Lauderdale, FL 33313
735-6000



broward community college

administrative offices
225 east las olas boulevard
fort lauderdale, florida 33301

January 15, 1979

Dear

The Advisory Panel concerned with the research project, "Curriculum Development for New Occupational Training" held its inaugural meeting January 11, 8 A.M. Enclosed is information distributed to the members who attended the meeting.

If you still intend to serve on the panel, there are a few matters you can assist us with. First, please acknowledge your intentions by calling Kerry Lyn Fair (project coordinator) at 467-6700, ext. 235. Secondly, please return the input sheet (last page), as soon as possible, indicating the areas in which you can provide assistance.

We have also asked the members of the panel to criticize the enclosed Task Analysis instrument. When all the criticisms have been made by members of the panel, the task analysis will be revised before a pilot test is undertaken.

Any comments you could make would be greatly appreciated. A pre-paid reply envelope has been enclosed for your convenience.

We look forward to hearing from you in the near future.

Sincerely,

Mantha Vlahos Mehallis, Ph. D.
Director of Institutional Research
and Systems Planning

Kerry Lyn Fair
Project Coordinator

APPENDIX H

Letter of Appreciation



broward community college

administrative offices
225 east las olas boulevard
fort lauderdale, florida 33301

January 3, 1980

Dear Research Project Participant:

Thank you for participating in Broward Community College's research project this past year to determine occupational characteristics and skills. As a result of the information we gathered, we have identified specific areas where the curriculum may be revised or expanded. Our program managers will be implementing some of the recommendations this next term.

If you are interested in receiving a copy of the results for your specific occupational area, please send me your name and address so that we may forward it to you. Again, ~~we~~ thank you for your assistance in making our project a success.

Sincerely,

Mantha Vlahos Mehallis

Dr. Mantha Vlahos Mehallis, Ph. D.
Director of Institutional research
and Systems Planning

MVM/am

APPENDIX I

Correlations between
Supervisors and Employees

Pearson Correlations for Drafting

<u>Questions</u>	<u>Coefficient</u>	<u>Significance</u>
37 x 6	-0.4082	0.037
39 x 8	0.4901	0.014
53 x 12	-0.4602	0.021
48 x 18	0.5030	0.012

Pearson Correlations for Electronic Technician

<u>Questions</u>	<u>Coefficient</u>	<u>Significance</u>
37 x 6	-0.3056	0.050
39 x 8	0.4643	0.005

<u>Skills</u>	<u>Coefficient</u>	<u>Significance</u>
11 x 29	0.3518	0.028

Pearson Correlations for Head Nurse

<u>Questions</u>	<u>Coefficient</u>	<u>Significance</u>
39 x 8	-0.9166	0.001
40 x 9	-0.9059	0.001

<u>Skills</u>	<u>Coefficient</u>	<u>Significance</u>
11 x 29	0.4714	0.024
12 x 30	0.6280	0.003

Computer Programmer
Pearson Correlations for Business Data Processing

<u>Questions</u>	<u>Coefficient</u>	<u>Significance</u>
-	-	-

<u>Skills</u>	<u>Coefficient</u>	<u>Significance</u>
8 x 26	0.3891	0.045

Pearson Correlations for Construction Secretary

<u>Questions</u>	<u>Coefficient</u>	<u>Significance</u>
39 x 8	0.8000	0.005

<u>Skills</u>	<u>Coefficient</u>	<u>Significance</u>
7 x 25	0.6599	0.027

Pearson Correlations for Insurance Secretary

<u>Questions</u>	<u>Coefficient</u>	<u>Significance</u>
9 x 27	0.5327	0.011
11 x 29	0.6860	S = 0.001
12 x 30	0.5571	S = 0.008

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